COMPENSATION FOR EXPOSURE TO HAZARDOUS SUBSTANCES

HEARING

BEFORE THE

SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT

OF THE

COMMITTEE ON SCIENCE AND TECHNOLOGY U.S. HOUSE OF REPRESENTATIVES

NINETY-SEVENTH CONGRESS

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COMPENSATION FOR EXPOSURE TO HAZARDOUS SUBSTANCES

THURSDAY, AUGUST 12, 1982

House of Representatives,
Committee on Science and Technology,
Subcommittee on Investigations and Oversight,
Washington, D.C.

The subcommitte met, pursuant to notice, at 9:38 a.m., in room 2325, Rayburn House Office Building, Hon. Albert Gore, Jr. (chairman of the subcommittee), presiding.

Present: Representatives Gore, Wolpe, Shamansky, Albosta, and Walker.

[The opening statements of Mr. Gore and Mr. Walker follow:]

COMMITTEE ON SCIENCE AND TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C. 20515

OPENING STATEMENT
HONORABLE ALBERT GORE, JR., CHAIRMAN
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
August 12, 1982

Currently, there are tens of thousands of claims for asbestos-related diseases in the courts and in state administrative proceedings. Claims by workers, their families and others exposed to asbestos decades ago who have only in the past few years experienced disabling illness and death from diseases with strange names like asbestosis and mesothelioma. One of our witnesses today, Dr. Irving Selikoff, the pre-eminent authority on asbestos and other environmental related diseases, has estimated that there will be 10,000 asbestos-related deaths per year for the next 20 years. Yet asbestos -- though widely used -- is only one of the many substances to which we are exposed.

Cotton dust and PBB, both of which we will hear more about today, coal dust, vinyl chloride, Keypone and many other substances are suspected to be responsible for chronic diseases such as cancer, birth defects, and lung diseases. Environmental exposures to hazardous waste at Love Canal and elsewhere have been associated with an increased incidence of spontaneous abortions, birth defects, and other serious effects. Because of the increasing volume and variety of hazardous substances, opportunities for exposure to such substances, through air and drinking water, by ingestion or contact, have increased and the reported incidence of pollution-related diseases has increased as well.

The cost of disease to the victim is often incalculable, and the cost to society generally is staggering. In the asbestos litigation alone -- a situation where there is substantial evidence that some asbestos companies knew about the hazards associated with asbestos and failed to protect their workers -- one company has recently filed for bankruptcy, and another, the largest, had to skip its quarterly dividend and reportedly has already exhausted its $500 million primary insurance coverage.

The problem of compensating people who have been injured has taken on great importance -- first as a means of "making whole" those injured, and second, as a means of deterring future pollution.

However, solutions to the problem of compensating victims for an environmental disease are not simple. Unlike an automobile accident, where we can reasonably identify the cause of the accident, in many pollution-related diseases there is great difficulty in associating the disease with the source of pollution and in identifying the source of pollution. The relationship between pollution and disease is complex and surrounded by vast unknowns.

We will hear today from people exposed to PBBs, and cotton dust, and from scientists and lawyers, about some of the unknowns -- the lack of information about the properties of toxic substances, their fate and dispersion in the environment, and their impact on health; the cost and time involved in obtaining data, and the absence of standard methodologies for conducting tests; and the difficulties in diagnosing an environmentally-related disease. We will hear today as well about ways to improve our ability to detect environmental disease and about the research that needs to be undertaken in this area.

Lastly, we will examine how the difficulties in establishing causation affect a victim's ability to obtain compensation. Two soon to be completed studies, which we will hear about -- one by the National Science Foundation and the other by the Superfund Study Group -- should provide useful information in this area.

While the focus of today's hearing is on compensation for pollution-related diseases, I cannot let the moment pass without commenting on what I see as the primary goal of society in this area -- the goal of preventing disease. Prevention and not compensation for disease, pain and suffering, and lost earnings was the goal adopted by Congress in the landmark environmental and occupational health legislation of the last decade. It seems clear to me that that goal -- while not easily obtainable -- is both philosophically correct and economically sound -- and that an ounce of prevention has always been worth more than a pound of cure. What is called for, then, is vigorous implementation and enforcement of the nation's environmental and occupational health laws, and the development of a compensation system that quickly and adequately compensates those injured, while placing the burden for funding such a system in a manner so as to deter pollution.

OPENING REMARKS OF REPRESENTATIVE ROBERT S. WALKER

MR. CHAIRMAN, OUR TOPIC TODAY IS ONE THAT THE COMMITTEE MAY HAVE A DIFFICULT TIME STRUGGLING WITH. IT IS AN AREA IN WHICH THE LAW IS NOT SETTLED, AN AREA IN WHICH THERE IS STILL NO ACCEPTED GOVERNMENTAL POLICY, AND AN AREA IN WHICH THERE ARE STILL A GREAT NUMBER OF UNKNOWNS.

ONLY YESTERDAY THE BOARD OF VETERANS APPEALS RULED THAT A FORMER SERVICEMAN WHO WITNESSED SIX NUCLEAR TESTS AT THE NEVADA TEST SITE IN 1955 IS ENTITLED TO COMPENSATION FOR DISABLING SKIN CANCER AS A RESULT OF HIS EXPOSURE TO RADIATION DURING THE COURSE OF THOSE TESTS. PERHAPS THE FACT THAT THE VICTIM WAS ACTUALLY BLOWN OUT OF A TRENCH BY THE FORCE OF THE BLAST IN ONE OF THOSE TESTS CONVINCED THE BOARD THAT THIS VETERAN WAS ENTITLED TO COMPENSATION FOR A SERVICE CONNECTED DISABILITY. HE IS ONLY THE THIRTEENTH VETERAN TO BE GIVEN COMPENSATION, WHILE MORE THAN 2,000 HAVE BEEN REJECTED BY THE BOARD ACCORDING TO THE NATIONAL VETERANS LAW CENTER.

THE LINKAGE BETWEEN SERIOUS ILLNESS WHICH APPEARS YEARS LATER, AND EXPOSURE TO ENVIRONMENTAL POLLUTANTS IS EXTREEMLY HARD TO DEMONSTRATE. MANY OF THESE EXPOSURES ARE OF SHORT DURATION, AND MAY BE TO POLLUTANTS WHICH ARE NOT RECOGNIZABLE. WHILE RADIATION EXPOSURE IS NOT THE FOCUS OF OUR HEARING TODAY IT IS INTERESTING TO NOTE THAT NEAR THE SMALL TOWN OF SAINT GEORGE, UTAH, THERE IS A VERY BEAUTIFUL AREA KNOWN AS MONUMENT VALLEY WHICH WAS ONCE HIGHLY PRIZED AS A BACKDROP FOR WESTERN MOVIES.

IN THE 1950'S MANY WESTERNS WERE SHOT THERE ON LOCATION. AND DESPITE THE CHOKING DUST, ACTORS AND PRODUCTION CREWS ENJOYED THE RUGGED BEAUTY OF THE VALLEY.

IT WAS NOT UNTIL MANY YEARS LATER THAT OBSERVERS BEGAN TO PUT TOGETHER THE FACTS THAT THERE HAD BEEN A SERIES OF ATMOSPHERIC NUCLEAR TESTS AT THE NEVADA TEST SITE TO THE WEST; THE PREVAILING WINDS ARE FROM THE WEST TO THE EAST; THERE HAD BEEN LARGE NUMBERS OF SHEEP AND OTHER ANIMALS WHICH HAD DIED SHORTLY AFTER THE NUCLEAR TESTS; AND THERE ARE ABNORMALLY HIGH RATES OF RARE CANCERS IN THE RESIDENTS OF THE SAINT GEORGE AREA.

WHILE IT CANNOT BE PROVED, THERE ARE A NUMBER OF OBSERVERS WHO NOW BELIEVE THAT MANY IN THOSE MOVIE CREWS, INCLUDING JOHN WAYNE, EVENTUALLY DEVELOPED CANCERS BECAUSE OF THEIR EXPOSURE TO RADIOACTIVELY CONTAMINATED SAND AND DUST WHILE FILMING THOSE MOVIES.

WE ARE FINDING THAT MANY OF THE POLLUTANTS WHICH WE ONCE CONSIDERED NO MORE THAN A PUBLIC NUISANCE ARE FAR MORE DANGEROUS. AND THEY ARE ALSO FAR MORE INSIDIOUS. MANY OF THE CHRONIC EFFECTS OF EXPOSURE TO POLLUTANTS ARE NOT KNOWN UNTIL YEARS AFTERWARDS. AND, WHILE I AM NOT A LAWYER, IT IS EASY TO SEE THAT PROVING CAUSATION YEARS AFTER THE FACT WOULD BE DIFFICULT, IF NOT IMPOSSIBLE.

BUT WE MUST LOOK AT THIS AS A PUBLIC POLICY ISSUE. IF THE GOVERNMENT, OR A CORPORATION, OR EVEN AN INDIVIDUAL PUTS SOMEONE AT RISK, AND THE CONSEQUENCES ARE CATASTROPHIC, THEN WHO SHOULD BE LIABLE FOR DAMAGES WHEN THE CATASTROPHY OCCURS?

THIS IS THE QUESTION WE MUST EXAMINE TODAY, AND WE MUST

LOOK AT IT FROM SEVERAL DIFFERENT POINTS OF VIEW. IT IS NOT TO DIFFICULT TO SAY THAT IF SOMEONE IS INJURED IN THE WORKPLACE THAT THE EMPLOYER SHOULD HAVE SOME LIABILITY. AND WE ARE ALSO NOW REALIZING THAT IF THE GOVERNMENT EXPOSES EMPLOYEES OR MEMBERS OF THE MILITARY TO HAZARDOUS SITUATIONS SUCH AS NUCLEAR TESTING OR AGENT ORANGE, THEN THE GOVERNMENT MUST FACE THE LIABILITIES INVOLVED. BUT WE MUST ALSO LOOK AT THE QUESTION OF WHO IS LIABLE WHEN SOMEONE WHO LIVES NEAR A MANUFACTURING FACILITY DEVELOPS CHRONIC LUNG DISORDERS. ARE THEY THE RESULT OF THE DISCHARGE FROM THE FACTORY SMOKESTACK, OR SOME OTHER FACTOR? OR, WHAT OF THE FARMER WHO LIVES NEAR THREE MILE ISLAND? HAD THAT ACCIDENT BEEN EVEN SLIGHTLY MORE SEVERE, HAD A BIT MORE RADIATION EXCAPED FROM TMI, WHO WOULD HAVE BEEN ABLE TO SAY THAT TWENTY YEARS FROM NOW THIS CANCER WAS THE RESULT OF RADIATION FROM TMI AND THIS ONE WAS NOT?

IN COURTS OF LAW THE QUESTION OF LIABILITY IS BASED ON SIMPLE CAUSATION, AND THAT IS USUALLY EASY TO PROVE OR DISPROVE. BUT HERE WE ARE DEALING WITH INJURIES WHICH MIGHT NOT APPEAR FOR DECADES. AND WE ARE DEALING WITH INJURIES WHICH MAY BE CAUSED BY MORE THAN ONE THING. THE CHRONIC LUNG DISEASE MAY BE CAUSED BY SMOKESTACK EMMISSIONS, OR BY SMOKING, OR BY OTHER AMBIENT POLLUTANTS. THE CAUSES OF CANCER ARE NOT EVEN FULLY KNOWN TODAY. BUT WE NEED TO EXAMINE THESE QUESTIONS WITH AN EYE TOWARD THE VICTIM AND HIS ABILITY TO RECOVER FOR HIS INJURY FROM THOSE PARTIES WHO CAN AFFOARD TO COMPENSATE. THE PUBLIC POLICY QUESTION HERE IS REALLY "WHO SHOULD PAY FOR THE INJURY, AND WHAT SHOULD THE BURDEN OF PROOF BE IN THESE CASES?"

Mr. **Gore**. The subcommittee will come to order.

I would like to welcome our guests and our witnesses. We have a difficult topic today, and we have a long day. So we are going to try to get started close to on time.

Currently, there are tens of thousands of claims for asbestos-related diseases in the courts and in State administrative proceedings. Claims by workers, their families, and others exposed to asbestos decades ago, who have only in the past few years experienced disabling illness and death from diseases with strange names like asbestosis and mesothelioma.

One of our witnesses today, Dr. Irving Selikoff, the preeminent authority on asbestos and other environmental related diseases, has estimated that there will be 10,000 asbestos-related deaths per year for the next 20 years. Yet asbestos, though widely used, is only one of the many substances to which we are exposed. Cotton dust and PBB, both of which we will hear more about today, coal dust, vinyl chloride, kepone, and many other substances are suspected to be responsible for chronic diseases such as cancer, birth defects, and lung diseases.

Environmental exposures to hazardous waste at Love Canal and elsewhere have been associated with an increased incidence of spontaneous abortions, birth defects, and other serious effects. Because of the increasing volume and variety of hazardous substances, opportunities for exposure to such substances, through air and drinking water, by ingestion or contact, have increased and the reported incidence of pollution-related diseases has increased as well.

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The problem of compensating people who have been injured has taken on great importance, first as a means of "making whole" those injured and second, as a means of deterring future pollution. However, solutions to the problem of compensating victims for an environmental disease are not at all simple. Unlike an automobile accident, where we can reasonably identify the cause of the accident, in many pollution-related diseases there is great difficulty in associating the disease with the source of pollution and in identifying the source of pollution. The relationship between pollution and disease is complex and surrounded by vast unknowns.

We will hear today from people exposed to PBB's and cotton dust, and from scientists and lawyers, about some of the unknowns—the lack of information about the properties of toxic substances, their fate and dispersion in the environment, and their impact on health; the cost and time involved in obtaining data, and the absence of standard methodologies for conducting tests; and the difficulties in diagnosing an environmentally related disease. We will hear today as well about ways to improve our ability to detect environmental disease and about the research that needs to be undertaken in this area.

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Let me say that we have a long witness list, and I want to announce at the outset that we anticipate having a very short lunch break today, around 12:30, maybe for half an hour or 45 minutes. It is a tough complex of issues, and our first panel to help us with these issues is Mr. Roy Dowdy, from Danville, Va.; Dr. Ted Kunstling, chairman of the North Carolina Textile Occupational Disease Panel, in Raleigh; and Paul Michaels, with Michaels & Jernigan, in Raleigh, N.C.

Gentlemen, I would like to welcome you, and I would like to thank you for helping us this morning.

Mr. Dowdy, we will start with your testimony.

Without objection, the entire text of our witnesses' statements will be put into the record, and we invite you to proceed in any manner you see fit.

STATEMENT OF ROY DOWDY, A BROWN LUNG VICTIM, DANVILLE, VA.

Mr. Dowdy. I started in textiles in 1936 at Dan River. I worked there until 1968. Then I moved into Fieldcrest in 1968 and worked there until 1976. While I was there, they found this breathing trouble. They sent me to Chapel Hill, and Dr. Battagelli gave me an 8-hour examination. He ordered me out of the cardroom, to be transferred out of the cardroom.

I went back, but the job that they were going to move me on had already been taken. So I continued working in the cardroom. They were always giving me the blowing test, kept that going all the time. I would get choked up at times, and I'd have to move to a window so I could breathe. On my way to the car, it was low, the lot. I would have to stop as much as two times to rest to get into my car. It was getting shorter all the time.

So in 1976, March 1, they retired me.

Mr. GORE. Did you get compensation for this illness?

Mr. DOWDY. No, I haven't gotten any compensation on it. I have not drawn anything.

Mr. GORE. Did you try to get compensation?

Mr. DOWDY. Yes, I have tried. I moved in with the brown lung. My wife works; that is the way that I go.

Mr. GORE. Did you not go to the company and say, "This disease seems to be the result of breathing cotton dust"?

Mr. DOWDY. That is right. I talked with the supervisor. One supervisor the last part told me, "You have byssinosis." That is the first time it had ever been told. Dr. Battagelli, he never told me that, but he did tell my wife. She was asking questions after that 8-hour examination, and he told my wife, "He is going to have to have a lot of help to make it to 60." I was 55 at that time.

Mr. GORE. You filed a claim with workers' compensation?

Mr. DOWDY. Yes, sir.

Mr. GORE. And that claim has not been granted?

Mr. DOWDY. No, sir.

Mr. GORE. Have they told you they do not think it is caused by cotton dust, or they are having trouble proving that it is?

Mr. DOWDY. They made the statement in a hearing one time, they knew I had the byssinosis, the brown lung. It was in a hearing. It had already been established that I had it.

Mr. GORE. So why have you not received compensation? Have you been paid any benefits at all?

Mr. DOWDY. Social security.

Mr. GORE. How long did you work for the company?

Mr. DOWDY. I went to work there in 1968 and quit March 1, 1976. I worked in Dan River 31 years. I think it is about 41 years, total, of textiles.

Mr. GORE. And now you have this byssinosis?

Mr. DOWDY. Right.

Mr. GORE. But you still have not received any compensation for it?

Mr. DOWDY. That is right.

Mr. GORE. Are you able to work now?

Mr. DOWDY. No, sir. I am not able at times to get out of the house. At times, I stay in the house a month at a time.

Mr. GORE. What kind of symptoms do you have?

Mr. DOWDY. Tightening in the chest, and it works all over my body. The last I checked I had, he thought I had the cataracts, and then the doctor found out I had the brown lung, and he said that was it.

Mr. GORE. You filed for workmens' compensation in 1978, but the company opposed the payment of any benefits to you; is that correct?

Mr. DOWDY. That is right.

Mr. GORE. You were initially denied workers' compensation benefits by an administrative officer, but subsequently in a decision by the North Carolina Industrial Commission, they established your claim to it, but that decision was appealed to the commission, and the company is now appealing the ruling in court; is that correct?

Mr. DOWDY. That is right.

Mr. GORE. All right. We will get into the legal issues and the scientific issues that revolve around your case with the other witnesses on this panel, and I hope you will stay here to give a practical, human dimension to the problem. Feel free to speak up as we discuss these issues.

I would like to turn now to Dr. Ted Kunstling, chairman of the North Carolina Textile Occupational Disease Panel in Raleigh. Dr. Kunstling, without objection, your prepared statement will be put into the record in full. We invite you to proceed. If you want to summarize any portion of it, feel free to do so.

STATEMENT OF TED R. KUNSTLING, M.D., F.C.C.P., CHAIRMAN, NORTH CAROLINA TEXTILE OCCUPATIONAL DISEASE PANEL, RALEIGH, N.C.

Mr. KUNSTLING. Mr. Chairman, it is a privilege to be invited to testify before this subcommittee hearing on byssinosis. As chairman of the Textile Occupational Disease Panel of the North Carolina Industrial Commission, I would like to address the issues concerning this subcommittee and share some of our experiences in North Carolina.

Byssinosis is an occupational lung disease caused by exposure to dust from cotton, flax, or hemp fibers which manifests as obstructive airways disease. It is clinically not distinguishable from other forms of chronic obstructive lung disease, such as chronic bronchitis, asthma, and emphysema, except by the sometimes occurring, so-called Monday morning phenomena, which consists of acute cough, shortness of breath, and chest discomfort occurring on the first day of the work week following an absence from the mill.

Although byssinosis was first described several centuries ago, its existence in the United States was not recognized until the 1960's, and the first claims under workmen's compensation for byssinosis were not filed in North Carolina until the 1970's. These early claims were contested, controversy immediately arose, and in October 1975, under the auspices of the Carolina Brown Lung Association, the first of several mass filings for workmen's compensation for brown lung occurred in Raleigh.

I have had an opportunity to review Mr. Dowdy's medical reports and find that they are illustrative of several issues concerning compensation of workers for byssinosis:

First. He clearly has chronic obstructive lung disease and is totally disabled by his pulmonary impairment.

Second. He has had a long 41-year exposure to cotton dust in a work area considered to be at risk for byssinosis.

Third. The unreliability of the Monday morning phenomena as a diagnostic criterion is evident. Three doctors, between 1973 and 1979, obtained three versions of the relation of his symptoms to the work environment. And although all seemed to agree that the work environment aggravated his symptoms, they differed in their willingness to diagnose byssinosis. It must be emphasized that except for the possible Monday morning phenomenon history, there is absolutely nothing to distinguish Mr. Dowdy's chronic obstructive lung disease from that occurring in a member of the general public not exposed to cotton dust. There are no characteristic physical findings, X-rays, or other laboratory abnormalities to make this distinction, and it is unlikely that there will be.

Fourth. As is the case with most former cotton textile workers with severe airways obstruction, Mr. Dowdy has smoked cigarettes for many years, and continued to smoke in spite of medical advice. Cigarette smoking is known to cause progressive chronic obstructive lung disease. The chronic effects of cigarette smoking and occupational exposure to cotton dust cannot be clinically distinguished and are probably at least additive.

Based on clinical experience and currently available scientific information, which is neither perfect nor free of controversy, most physician members of the Textile Occupational Disease Panel would find that Mr. Dowdy's occupational exposure to cotton dust did contribute to the development of, or aggravation of, his chronic obstructive lung disease, and hence, that he has brown lung. It is my understanding that Mr. Dowdy did receive an award or at least a decision was made in his favor by the Industrial Commission in 1981, but it has been appealed on nonmedical grounds.

The brown lung controversy in North Carolina prompted Gov. James B. Hunt, Jr., to appoint a brown lung study committee, chaired by Robert Byrd, dean of the University of North Carolina School of Law, on which I served, which issued its report April 10, 1980. We identified several significant problems at that time with the medical reports of panel physicians:

First, 45 to 55 percent of panel physican medical reports, which are the primary source of information relating to the claimant's physical condition, its causes, and its effects upon his ability to perform work contained no statement or opinion on these points. This deficiency delayed processing of claims and increased the likelihood of denial.

Second, conflicting opinions of panel physicians complicated claims processing and seemed to result in the diagnosis in a particular case being greatly influenced by the attitudes and perceptions of the examining physician. For example, one physician diagnoses byssinosis in 20 percent of cases, while another diagnosed it in 90 percent.

As the result of the Byrd committee findings, guidelines on matters essential to proper determination of the compensation claim were adopted for panel physician reports. In addition, Governor Hunt appointed a special medical committee consisting of the panel physicians, Dean Byrd, and representatives from industry and the Brown Lung Association, to develop workable solutions to the medical issues involved in processing byssinosis claims. These issues included the definition of byssinosis, the identification of diagnostic criteria, and the development of guidelines for disability determination. I chaired this committee, which issued a report on May 19, 1981, that currently serves as the guide for panel physicians examining workers for byssinosis compensation.

We felt it was necessary to develop a fair and reasonable system, in spite of the gaps in our scientific knowledge of byssinosis. Time will not allow a detailed description of our report, which represented a consensus of the panel physicians and which I have provided to you, but we developed minimal, rather than presumptive, criteria for the diagnosis of byssinosis:

First, the worker should have had an exposure of at least 5 years' duration in a cotton textile mill, in a work area "associated with an increased risk of byssinotic reactions in order for disabling pulmonary impairment to be attributable to cotton dust exposure."

Second, there must be objective evidence of obstructive pulmonary impairment, manifest by reductions of the FEV-1 second below 80 percent predicted normal and the FEV-1/FVC ratio below 70 percent for there to be permanent pulmonary impairment attributable to cotton dust exposure.

Third, the abnormalities of lung function should not clearly be due to nonoccupational causes.

As a result of the adoption of these guidelines and other efforts, the North Carolina Industrial Commission is now processing claims in a more orderly, fair, and impartial manner. By July 2, 1982, 2,250 claims for byssinosis had been filed in North Carolina, 934 found compensable, and $13,174,509 in compensation paid. It should be noted that the word byssinosis and brown lung do not appear in the North Carolina workmens' compensation laws.

Significant gaps remain in our knowledge about byssinosis: One, adequately controlled prospective longitudinal studies on the relationship between occupational cotton dust exposure and chronic airways obstruction have not been completed; two, the actual causative agent of byssinosis has not been identified—it is not felt to be the cotton fiber but rather a contaminant, either a component of the bracts or bacteria; three, a dose relationship between dust exposure and development of airways obstruction has not been established.

Answers to these questions are vital not only to improve the compensation process, but also to make the work environment safer and to protect the jobs of those workers who have mild lung disease who can work and who want to work.

Finally, I must emphasize that in workmens' compensation cases, causation is established in a legal sense rather than a medical sense; that is, a greater than 51-percent probability of cause. This concept causes many physicians, unfamiliar with legal proceedings, difficulty. For more detailed discussions of current medical evidence linking cotton dust exposure to chronic obstructive lung disease, I would refer you to the testimony of Dr. James A. Merchant before the Subcommittee on Labor Standards, May 16, 1979, and the report of the Committee on Byssinosis of the National Research Council, and in particular the minority report of Dr. Kaye Kilburn, which was released this year. I have also provided a number of other documents and reports to Mr. Owens in advance, which I would like to have submitted to this subcommittee as a part of my testimony.

Thank you.

[The prepared statement of Mr. Kunstling follows:]

Subcommittee on Investigations and Oversight
Testimony of Ted R. Kunstling, M.D.,F.C.C.P
August 12, 1982

Mr. Chairman: It is a privilege to be invited to testify before this subcommittee hearing on byssinosis. As chairman of the Textile Occupational Disease Panel of the North Carolina Industrial Commission, I would like to address the issues concerning this subcommittee and share some of our experience in North Carolina.

Byssinosis is an occupational lung disease caused by exposure to dust from cotton, flax, or hemp fibers which manifests as obstructive airways disease. It is clinically not distinguishable from other forms of chronic obstructive lung disease such as chronic bronchitis, asthma and emphysema, except by the sometimes occurring, so-called "Monday morning phenomena," which consists of acute cough, shortness of breath and chest discomfort occurring on the first day of the work week following an absence from the mill. Although byssinosis was first described several centuries ago, its existence in the United States was not recognized until the 1960's, and the first claims for Workmen's Compensation for byssinosis were not filed in North Carolina until the 1970's. These early claims were contested, controversy immediately arose, and in October, 1975, under the auspices of the Carolina Brown Lung Association, the first of several mass filings for workmen's compensation for brown lung occured in Raleigh.

The medical records of R.G.D., a disabled former card room worker, are illustrative of several issues concerning compensation of workers for byssinosis:

1. He clearly has chronic obstructive lung disease and is totally disabled by his pulmonary impairment.

2. He has had a long (41 year) exposure to cotton dust in a work area considered to be at risk for byssinosis.

3. The unreliability of the Monday morning phenomena as a diagnostic criteria is evident. Three doctors, between 1973 and 1979, obtained three versions of the relation of his symptoms to the work environment;and, although all seemed to agree the work environment aggravated his symptoms, they differed in their willingness to diagnose byssinosis. It must be emphasized that except for the possible Monday morning phenomena history, there is absolutely nothing to distinguish R.G.D.'s chronic obstructive lung disease from that occurring in a member of the general public not exposed to cotton dust. There are no characteristic physical findings, x-rays or other laboratory abnormalities to make this distinction, and it is unlikely that there will be.

4. As is the case with most former cotton textile workers with severe airways obstruction, R.G.D. has smoked cigarettes for many years and continued to smoke in spite of medical advice. Cigarette smoking is known to cause progressive chronic obstructive lung disease. The chronic effects of cigarette smoking and occupational exposure to cotton dust cannot be clinically distinguished and are probably at least additive.

Based on clinical experience and currently avilable scientific information,which is neither perfect nor free of controversy, most physician members of the Textile Occupational Disease Panel would find that R.G.D.'s occupational exposure to cotton dust did contribute to the development of, or aggravation of, his chronic obstructive lung disease; and, hence, that he has "brown lung." It is my understanding that R.G.D. did receive an award from the Industrial Commission in 1981, but that it has been appealed on non-medical grounds.

The brown lung controversy in North Carolina prompted Governor James B. Hunt, Jr., to appoint a Brown Lung Study Committee, chaired by Robert Byrd, Dean of the University of North Carolina School of Law, on which I served, which issued its report April 10, 1980. We identified several significant problems at that time with the medical reports of panel physicians:

1. 45-55% of panel physician medical reports, which are the primary source of information relating to the claimants physical condition, its causes, and its effects upon his ability to perform work, contained no statement or opinion on these points. This deficiency delayed processing of claims and increased the likelihood of denial.

2. Conflicting opinions of panel physicians complicated claims processing and seemed to result in the diagnosis in a particular case being greatly influenced by the attitudes and perceptions of the examining physicians. For example, one physician diagnosed byssinosis in 20% of cases while another diagnosed it in 90%.

As the result of the Byrd Committee findings , guidelines on matters essential to proper determination of a compensation claim were adopted for panel physician reports. In addition, Governor Hunt appointed a Special Medical Committee consisting of the panel physicians, Dean Byrd, and representatives from industry and the Brown Lung Association, to develop workable solutions to the medical issues involved in processing byssinosis claims. These issues included the definition of byssinosis, the identification of diagnostic criteria, and the development of guidelines for disability determination." I chaired this committee which issued a report on May 19, 1981, that currently serves as the guide for panel physicians examining workers for byssinosis compensation.

We felt it was necessary to develop a fair and reasonable system in spite of the gaps in our scientific knowledge of byssinosis. Time will not allow a detailed description of our report, which represented a consensus of the panel physicians and which you have, but we developed minimal, rather than presumptive, criteria for the diagnosis of byssinosis:

1. The worker should have had an exposure of at least five years duration in a cotton textile mill in a work area associated with an increased risk of byssinotic reactions.

2. There must be objective evidence of obstructive pulmonary impairment manifest by reductions of the FEV_1 second below 80% predicted normal and FEV_1/FVC ratio below 70% for there to be permanent pulmonary impairment atttributable to cotton dust exposure.

3. The abnormalities of lung function should not clearly be due to nonoccupational causes.

As a result of the adoption of these guidelines and other efforts, the North Carolina Industrial Commission is now processing claims in a more orderly, fair and impartial manner. By July 2, 1982, 2,250 claims for byssinosis had been filed in North Carolina, 934 found compensable, and $13,174,509 in compensation paid. It should be noted that the words "byssinosis" and "brown lung" do not appear in the North Carolina workmen's compensation laws.

Significant gaps remain in our knowledge about byssinosis:

1. Adequately controlled prospective longitudinal studies on the relationship between occupational cotton dust exposure and chronic airways obstruction have not been completed.

2. The actual causative agent of byssinosis has not been identified. It is not felt to be the cotton fiber, but rather a containment, either a component of the bracts, or bacteria.

3. A dose relationship between dust exposure and development of airways obstruction has not been established.

Answers to these questions are vital not only to improve the compensation process, but also to make the work environment safer and to protect the jobs of those workers who have mild lung disease who can work and who want to work.

Finally, I must emphasize that in Workmen's Compensation cases, causation is established in a legal sense rather than a medical sense; that is, a greater than 51% probability of cause. This concept causes many physicians, unfamiliar with legal proceedings, difficulty. For more detailed discussions of current medical evidence linking cotton dust exposure to chronic obstructive lung disease, I would refer you to the testimony of Dr. James A. Merchant before the Subcommittee on Labor Standards, May 16, 1979, and the report of the Committee on Byssinosis of the National Research Council (particularly Dr. Kaye Kilburn's minority report) 1982, as well as the statements of the Lung Association of North Carolina and the North Carolina Medical Society, which I have provided this subcommittee.

Thank you.

Report of the Brown Lung Study Committee
to the Honorable James B. Hunt, Jr.
Governor of North Carolina

April 10, 1980

Submitted by:

Robert Byrd
Ronald Dilthey
Ted R. Kunstling
Harry C. Martin
James Martin, Jr.
Paul Michaels
Florence Sandlin (minority report)

Honorable James B. Hunt, Jr.
The Governor's Office
Administration Building
Raleigh, North Carolina 27611

Dear Governor Hunt:

I am pleased to submit the report and recommendations of the Brown Lung Study Committee. The committee's study has examined and its recommendations relate to almost every facet of the processing and handling of byssinosis claims. The scope of its undertaking is indicated by the brief summaries set out below.

Timely availability to the parties and the Industrial Commission of accurate and complete information on matters relating to claims is essential if they are to be processed expeditiously. To avoid delays and possible controversy incident to the collection of this basic information, the committee has made a number of recommendations that are designed to make this information readily and routinely available in each case. Because of the importance of information about the claimant's medical condition and its causes and consequences, several recommendations have been made to insure that physicians' medical reports not only provide the data needed by the parties and the Commission but also are submitted at the earliest possible time. Substantial time savings should also result from the committee's recommendations that permit claimants, at an early stage of the proceedings, to request that their cases be docketed for hearings.

The volume of byssinosis claims and the work load related to them were examined and important recommendations are made for additional funding and personnel for the Commission. A study was made of Commission procedures for review and approval of settlements, for docketing claims for hearing, for providing guidance to claimants, and for rule making. The Commission has already taken positive steps in adopting effective procedures in some of these areas. The committee encourages these developments and in addition has made a number of specific recommendations in each area.

Medical and legal uncertainties have posed major obstacles to speedy processing of byssinosis claims. Because of the technical nature of these issues, resolution of them by the committee was not possible. However, the committee believes that pulmonary specialists, by focusing upon the needs of the compensation system, can develop workable solutions to the medical issues in byssinosis cases and has recommended formation of a group for this purpose. The principal legal issue that is currently unresolved--the extent of an employer's liability for disability caused by both work and non-work related conditions--is now before the appellate courts and should be decided shortly. The committee recommends that peremptory review by the courts be sought in other cases that involve legal issues that affect the processing of an appreciable number of claims.

The contributions that several persons have made to the committee's work should be recognized. Benjamin Gilbert took a leave of absence from his regular employment to serve as principal investigator and staff of the committee and his outstanding performance contributed significantly to the committee's work. Mary Stallings served as secretary to the committee and her assistance was invaluable. The efforts of John Williams to facilitate acquisition of resources and personnel enabled the committee to become operational much sooner than otherwise would have been possible. Finally, the full and willing cooperation of William Stephenson and his staff was of immense help to our work.

Sincerely yours,

Robert G. Byrd /dc

Robert G. Byrd, Chairman
Brown Lung Study Committee

RGB:dwt

INTRODUCTION

Governor James Hunt appointed and on January 10, 1980 convened the Brown Lung Study Committee to study the processing of byssinosis claims and to make recommendations to expedite their determination. Committee members are: Robert Byrd, Ronald Dilthey Ted R. Kunstling, Harry Martin, James Martin, Jr., Paul Michaels, and Florence Sandlin. Benjamin Gilbert served as principal investigator and staff for the committee and Mary Stallings served as the secretary. The committee has met throughout January, February, March, and early April.

The following individuals appeared in person and made presentations to the committee: Haven Newton, Chairman, North Carolina Textile Manufacturer's Association Health and Safety Committee; William T. Holland, Jr., Assistant Claims Manager, Liberty Mutual Insurance Company; Beulah Moore, Mae Goodman, Bud Harrelson, and Olive Pankey, Carolina Brown Lung Association; Joseph Hughes, Research Associate, Institute for Southern Studies; Dr. Neil Schachter and Dr. Gerald Beck, Yale University School of Medicine; Dr. Charles Martin, Medical Director, Cone Mills Corporation; Richard Oppel, Editor, The Charlotte Observer; Dr. Leo J. Heaphy, member, Textile Occupational Disease Medical Panel; Dr. Moon W. Suh, Operations Research, Burlington Industries; and Dr. Philip C. Pratt, Veteran's Administration Hospital. Written presentations were made to the committee by the Carolina Brown Lung Association, The North Carolina Academy of Trial Lawyers, and by the law firm of Hassell and Hudson. A large number of studies and reports were made available to the committee. Benjamin Gilbert made several studies of the records, procedures, and processes of the Industrial Commission and reported the results of these studies to the committee.

The recommendations of the committee are set out in the remainder of this report. Although every recommendation that is made was not approved by all members of the committee, each of the recommendations was endorsed by a majority of the committee. The committee believes that the recommendations, as a whole, should expedite and improve significantly the processing and determination of byssinosis claims.

The committee recommends that, if its proposals are adopted, a review be conducted within approximately six months to determine the extent of progress in implementation and their effectiveness in expediting and improving the processing of claims.

CLAIMS PROCESSING

The processing of a byssinosis claim for workers' compensation is not limited to the holding of a hearing for determination of the claim. At the time the claim is filed neither the claimant nor the employer or insurance carrier probably possesses the facts necessary for a meaningful evaluation of the claim. Significant evidence relating to the claimant's physical condition, its causes, and its effect upon his ability to perform work is unlikely to exist, and an examination of the claimant by and report of a physician is essential. The claimant's work and medical histories, medical records in the claimant's or employer's possession, and related information are important to the physician's examination and to the parties' assessment of his report. Records relating to the employee's work and wages are needed.

The committee believes that the Industrial Commission's procedures should seek to make this information readily and routinely available to all parties to the proceeding. Undoubtedly, if the parties were left to their own resources, the information could be gained through various discovery devices; however, this approach entails greater expense, involves substantially more time, and, because the information may not become available timely, may necessitate a second medical examination accompanied by additional delays.

Provisions for obtaining the medical examination of a claimant and the report of the examining physician exist under current Commission procedure. Until the examining physician's report is made, no basis for a settlement or hearing in the case exists. Apparently, for this reason, a claimant is now permitted to request that his claim be set for hearing only after the physician's report is made. Although these provisions for the claimant's medical examination and the physician's report are consistent with the committee's belief that the procedures of the Commission should be designed to make available to the parties, to the greatest extent possible, the facts basic to assessment and determination of the claim, recommendations are made which the committee believes will expedite claims processing in this area.

The importance of this stage of claims processing can be demonstrated by a brief review of data compiled in several studies. These studies show that the physician's examination of the claimant occurs three to four months after the compensation claim is filed, that the medical report is made one and one-half to almost three months after the examination is performed, and that an additional two and one-half months pass before any step is taken to initiate a hearing.

The committee's recommendations provide for immediate scheduling of the medical examination, performance of the examination within a reasonable time, and prompt reporting of examination results. Cooperation of physicians and vigorous follow-up action by the Commission will be necessary if the goals of these recommendations are realized. To obtain compliance with the time guidelines for scheduling examinations and receiving medical reports, a number of actions may be necessary. An increase in the number of physicians on the panel may be required. Communication should be made to the physician that timely submission of the medical report is an important part of the service for which he is retained and a condition to his entitlement to a fee for his services. Physicians who frequently fail to comply with the time guidelines should be dropped from the panel. The Industrial Commission should assume a more vigorous role in communicating with physicians to insure that medical reports are filed timely; however, additional staff personnel may be required if this role is to be undertaken.

Under current Commission procedures, a claimant who alleges that his disability resulted from occupational exposure to cotton dust and some other agent or substance, such as chemicals or fumes, must file two separate claim forms and undergo two medical examinations--one for cotton dust and another for substances other than cotton dust. These claims, although they relate to a single disability, are processed separately. This procedure undoubtedly contributes to expense and delay in processing the claim and may, because of the obvious potential for development of inconsistencies in the dual processing of what is in fact a single claim, make its resolution more difficult. The committee believes that this procedure should be discontinued and that, if necessary, the Commission should adopt other rules to insure that the employer or carrier has adequate notice of the basis of the employee's claim.

Existing Commission rules seem to delay unnecessarily the docketing of byssinosis cases for hearings. The committee believes that modification of existing procedures to permit the claimant, at the time his claim is filed, to request that it be docketed for hearing may result in significantly earlier hearings in some cases. In cases in which a separate hearing is required to take the panel physician's testimony, existing procedures, under which a request for this hearing can be made only after the initial hearing is held, also contributes to delay and should be changed.

Recommendations

1. The filing of a valid and completed from 18B with the Industrial Commission shall serve as a request by the claimant for a panel medical examination. The Industrial Commission shall order and schedule the examination immediately. In cases in which a timely determination of the carrier's responsibility for provision of the medical examination is made, payment for the medical examination will be made by the carrier. In cases in which delay occurs in determining the carrier's responsibility for provision of the medical examination, payment for the medical examination will be made from a fund established in the Industrial Commission for this purpose.

2. A carrier that refuses to authorize payment for a medical examination shall file immediately with the Industrial Commission a written statement of the specific reasons for its refusal and provide a copy of such statement to the claimant or his attorney. When the carrier asserts that the employer was not processing cotton during the claimant's term of employment, the carrier shall provide the Industrial Commission with copies of the employer's production records for the applicable time period.

   The Industrial Commission may require the carrier to provide any additional information it deems relevant to the determination of the carrier's responsibility for provision of the medical examination. The claimant shall have 20 days after the mailing of the carrier's statement of specific reasons for refusal to authorize payment for the medical examination to file with the Industrial Commission a reply to the carrier's statement. In the absence of compelling reasons otherwise, the parties are encouraged to create a record, by stipulation of the material and relevant facts, or by affidavit, by which the Industrial Commission may determine the carrier's responsibility for payment of the medical examination.

   When payment for the medical examination is made by the Industrial Commission and it is later determined that the carrier had responsibility for provision of the medical examiniation, the carrier shall reimburse the Industrial Commission fund for the amount paid.

3. Industrial Commission Form 18B should be modified to include a section in which the claimant lists the names and addresses of all family physicians, treating physicians, and hospitals that have provided medical services or treatment to him over the 20-year period prior to the filing of the claim.

4. Industrial Commission Form 18B should be modified to include a section in which the claimant authorizes release to the carrier or its attorney of all medical records, including family physician and hospital records, pertaining to the claimant.

5. Industrial Commission Form18B should be modified to include a section in which the claimant records his complete work history, including the names of employers, the types of work performed, and the period of time employed.

6. Within 30 days of the date on which a claim for compensation is filed with the Industrial Commission, the carrier shall file with the Commission the complete work history and wage charts of the claimant with the employer against whom the claim arose and copies of all medical reports relating to the claimant, including cotton dust levels in work areas, health surveilance records, and pulmonary test results, in the possession of the employer or carrier. Copies of the work history and medical records shall be provided to the claimant or his attorney at the time they are filed with the Commission. The Industrial Commission shall then provide copies of the claimant's work history, cotton dust levels in work areas, health surveilance records, pulmonary test results, any other medical records, and Form 18B to the examining panel physician.

7. A medical examination, in the absence of extraordinary circumstances, should be performed within 60 days of the date on which the claimant files a valid and completed Form 18B.

8. Except in cases in which the nature of the examination or testing related to the examination requires additional time, the report of the examining panel physician shall be filed within 30 days of the date on which the examination of the claimant was completed.

9. The rules of the Industrial Commission should be changed to permit a claimant to request, upon filing a Form 18B, or any time thereafter, that his case be placed on the hearing docket.

10. The rules of the Industrial Commission which require Forms 18 and 18B to be filed and processed separately when a claimant seeks compensation for disability allegedly caused by exposure to both cotton dust and other substances should be changed to permit the use of a single claim form.

11. Industrial Commission procedures should be modified to permit a claimant, upon adequate showing that the panel physician's testimony will be required, to request a hearing to receive such testimony in the county in which the panel physician resides, at the same time that a claimant requests a hearing in his home county.

12. The workers' compensation statute should be amended to provide that an award of compensation from a hearing officer, unless paid within 14 days of the date of the award, shall bear interest at the legal rate from the date of the award until paid.

MEDICAL REPORT

The panel physician's medical report is the primary source of information relating to the claimant's physical condition, its causes, and its effect upon his ability to perform work. If the medical report fails to respond to these critical issues, further routine processing of the case is not likely to occur. When the claimant is represented by an attorney, further disclosure by the physician will be sought through interrogatories, deposition, or a reset of the case to take the physician's testimony. For the claimant without an attorney, the deficiencies in the medical report may mean eventual dismissal or denial of his claim.

Studies indicate that 45 to 55 percent of panel physicians' medical reports contain no statement or opinion on the causal connection between the claimant's disease and his occupational exposure, the claimant's physical impairment, or the claimant's disability. These studies also show that over 60 percent of the claims that are open or pending are cases in which one or more of these issues were not addressed in the medical report. One study indicates that the physician's medical report in almost 60 percent of the cases in which compensation was denied did not contain any opinion on cotton-caused disability. These factors suggest that the failure of the physician to respond to the issues that are essential to a determination of the claim probably affects both the processing and disposition of claims.

The committee recommends guidelines for the content of the physician's report that are designed to obtain from the physician responses to the medical issues that will be involved in the claim. A major purpose of these guidelines is to make available to all parties the basic information to be provided by the physician. It is the committee's hope that the need for interrogatories, depositions, and hearings to take physicians' testimony will be substantially reduced and that the time involved in pursuit of these additional procedures can be eliminated. It is the committee's further hope that the availability of complete medical information will encourage the parties to proceed at that time in a good-faith effort to settle the case.

Recommendation

13. To insure that each panel physician reports his findings or opinions on matters essential to proper determination of a compensation claim, the Commission should adopt the following guidelines for panel physicians' medical reports:
    (1) Has the worker had an occupational exposure to cotton dust?
    (2) Does the worker have chronic obstructive pulmonary disease? Is so, indicate the factors and/or conditions contributing to or causing such disease.
    (3) Does the worker have any other work-related disease or physical condition? If so, indicate the factors and/or conditions contributing to or causing such disease or condition.
    (4) Does the worker have any other diseaser or condition which is not related to the occupation? If so, indicate the factors and/or conditions contributing to or causing such disease or condition.
    (5) For each work-related disease or condition, did the worker's occupational exposure place him at greater risk of contracting the disease or condition than a member of the general public not exposed? If so, indicate the factors and/or conditions present giving rise to the increased risk.
    (6) Quantitate the total impairment of the worker due to all conditions and indicate his work capacity.
    (7) Quantitate the degree of respiratory impairment of the worker which is felt to be related to his occupational exposure and

indicate his work capacity. It is recommended that a standard descriptive guideline be adopted to facilitate this communication.

(8) If disabled, wholly or partially, on what date did such disability begin?

MEDICAL ISSUES

Medical uncertainty and a resulting conflict of opinions among pulmonary specialists relating to the definition and diagnosis of byssinosis, the causal relation between cotton dust exposure and lung disease, and, perhaps, the impact of lung impairment upon disability create major difficulties in the processing of byssinosis claims. This division of medical opinion provides both the worker and the employer or carrier a base on which to assert the correctness of his position on the issue of the employee's entitlement to compensation. Despite the payment of over three million dollars in byssinosis claims, pursuant to Commission awards and settlement agreements, the existence of a base for each of these opposing assertions continues to be a complicating factor in the processing of byssinosis claims. Because of the substantial number of claims that have not been paid, however, greater difficulties probably arise from the absence of any general standards relating to the medical examination that should be performed in these cases, the absence of any standard criteria to be utilized in diagnosis, and the absence of standards or guidelines for the determination of disability.

The impact of these factors upon the processing of byssinosis claims is significant and troublesome. They probably account in part for some of the deficiencies in medical reports that were discussed earlier. The absence of standards may mean that a diagnosis in a particular case is likely to be influenced to a great extent by the attitudes and perceptions of the examining physician. One study indicates a variation among panel physicians in the percentage of cases in which byssinosis was diagnosed that is difficult to explain on other grounds. One physician diagnosed byssinosis in only twenty percent of the cases referred to him while another diagnosed byssinosis in ninety-one percent of the cases referred to him. A further indication of this problem is that some physicians have acquired reputations for being more "favorable" to one side than to the other.

Under these circumstances, the happenstance of which panel physician is assigned to perform the medical examination may have a major effect upon the success or failure of a claim. This situation may encourage the party to whom the medical report is adverse to obtain another examination from a physician of his choice. As a consequence, delay and litigation are likely to result.

A definition of byssinosis, a standardized medical examination, diagnostic criteria, and guidelines for disability determination, can be developed only by pulmonary specialists. Although it may well be that final solutions in none of these areas are possible, the profession should be able to devise workable solutions that are responsive to the need.

Recommendation

14. Unless existing medical study groups indicate that solutions will be forthcoming imminently, a special medical committee should be appointed to develop workable solutions to the medical issues involved in processing byssinosis claims. These issues include the definition of byssinosis, the development of a standardized medical examination, the identification of diagnostic criteria, and the development of guidelines for disability determination. The nature of the issues involved requires substantial representation of pulmonary specialists on the committee. The goal of the committee should be to develop workable solutions that respond to the needs of the workers' compensation system rather than to issue a definitive

medical statement about the disease itself. For this reason, the committee should include either voting or non-voting lay representation, including attorneys who specialize in handling byssinosis claims and representation from textile workers and industry. The committee should be given a short, but reasonable, time in which to complete its work.

APPORTIONMENT AND OTHER LEGAL ISSUES

In many cases involving byssinosis claims both cotton dust exposure and other nonoccupational factors may contribute to cause the claimant's lung disease. In other cases both the occupational lung disease and another nonoccupational physical impairment may contribute to cause his work disability. A serious dispute exists about the extent of the employer's liability for compensation in these cases. Employees contend that when the occupational exposure has made a significant contribution to the claimant's disability the employer's liability for compensation should not be reduced when non-work related factors have contributed in causing the disability. Employers contend that compensation liability should be limited by the relative contribution the claimant's occupational exposure has made to this disability. These conflicting interpretations of the workers' compensation statute create a major obstacle to easy or early resolution of byssinosis claims.

A relatively high percentage of decided byssinosis cases have been disposed of by settlement agreements. It is probable that those settlement agreements which preclude future claims by the employee were affected significantly by the uncertainty in interpretation of the statute mentioned above, and that the compensation received by the employee was less because of this fact. The likelihood that uncertainty about the extent of the statute's coverage will have these effects is increased by the fact that the Commission has adopted, to some extent at least, the position that the employer's liability is limited by the relative contribution the claimant's occupational exposure has made to his disability. These cases are complicated further when the claimant is not represented by an attorney and the Commission, in reviewing the adequacy and fairness of the settlement, presumably follows the interpretation it has adopted.

This issue is involved in a case that has been appealed to the North Carolina Court of Appeals and that has been scheduled for early hearing. The question of the extent of the employer's liability under the statute is likely to be resolved by the courts in this case.

A number of other basic legal issues in the area of workers' compensation, which are important not only in the particular case in which they arise but also in a large number of other claims, have been or are likely to be litigated. Because of their broader impact and because of problems similar to those arising in connection with the apportionment issue may develop as long as the issues remain unsettled, it is imperative that these issues be resolved at the earliest possible time. Rule 29(b) of the North Carolina Rules of Appellate Procedure permits peremptory hearings of cases on appeal for appropriate causes. We urge that the Industrial Commission, in cooperation with the parties, seek under this rule the earliest possible determination of cases involving legal issues that affect the processing of an appreciable number of workers' compensation claims.

Recommendation

15. The Industrial Commission should encourage the parties to seek

under Rule 29(b) of the North Carolina Rules of Appellate Procedure the earliest possible determination of cases on appeal which involve legal issues that affect the processing of an appreciable number of workers' compensation claims. The Industrial Commission shall, when it identifies a case of this nature, expedite the preparation of the record for appeal.

STAFFING AND EQUIPMENT

The committee strongly believes that the provision of additional professional staff, support staff, and modern equipment is essential if the Industrial Commission is to process workers' compensation claims in an efficient and effective way. Our concern has been primarily with the processing of byssinosis claims and our examinations of the claims data in this area clearly reflects this need. Approximately 240 more byssinosis claims were filed in the period between February, 1978 and January, 1980 than were disposed of by the Industrial Commission in this period. If this same rate of disposition of byssinosis claims continued for the next two years, all the claims that are now pending before the Commission could not be disposed of in that period. If the rate at which new claims were filed during 1978-80 period continued over the next two years, 685 claims would be pending at the end of 1981. Studies suggest that the number of byssinosis claims that have been filed is low in relation to the number of cases of byssinosis believed to exist. The Industrial Commission has projected that the number of hearings scheduled relating to byssinosis claims will increase from 69 (actual number scheduled) in 1978-79 to 742 in 1982-83. The Commission also projects that the total number of all workers' compensation hearings scheduled will increase from 3209 (actual number scheduled) in 1977-78 to 5076 in 1982-83.

The committee believes that the need exists for additional deputy commissioners, for additional secretarial and clerical support, for additional court reporters, and for modern recording and word processing equipment. The Industrial Commission has identified specific personnel and equipment needs in its Expansion Budget Request, and we commend and endorse this action by the Commission. While we are not in a position to make specific recommendations relating to the number of people needed in each of these areas, we do identify one area of need which has not been addressed.

Currently, one Occupational Disease Claims Officer handles the filing, correspondence, processing, inquiries, and follow-up on all byssinosis , asbestosis, and silicosis claims. Support staff--a clerk stenographer and/or a secretary--would improve the efficiency of the processing of claims, provide for closer follow-up and prodding of the parties, and help reduce the delays in claims processing.

The committee also believes that, in order to attract and retain qualified personnel, a more competitive salary structure must be established for deputy commissioners and court reporters. The Commission has experienced difficulty retaining quality employees in these positions and the turnover of personnel has adversely affected the processing of claims. The comparisons set out below illustrate the difficulties faced by the Commission in its efforts to attract and retain highly qualified personnel. Salaries of deputy commissioners are not competitive with those offered comparable personnel in the State court system (i.e., those of District Court Judges). The Industrial Commission has often served as a training ground for many court reporters who then leave for the higher salaries offered by the Administrative Office of the Courts; Industrial Commission court reporters are prohibited from charging a fee for transcripts while court reporters in the State court system are permitted to charge fees for their transcripts.

The general impact upon claims processing of vacancies, training new personnel, loss of experienced personnel, and expanding caseloads is apparent. While time has not permitted us to trace the effects of these factors in a detailed way, their impact at this level can be illustrated. Substantial delays now occur in cases appealed to the Full Commission because personnel are not available to prepare a transcript of the proceedings before the deputy commissioner. At the present time, in some of these cases, more than nine months have elapsed since the deputy commissioner's decision and no hearing has been held by the Full Commission.

Recommendation

16. Adequate funding should be promptly provided to enable the Commission to attract and retain the number of qualified personnel and to obtain the modern equipment needed to carry out its functions.

PANEL PHYSICIANS

Although the input of data by physicians based upon their examination of claimants is vital in most byssinosis cases, the importance of this data is as evidence to establish or negate the existence of the requirements fixed by the Workers' Compensation Act to impose liability upon employers for compensation. If the data provided is to serve this purpose, it seems essential that physicians have a good understanding of what those issues are and, particularly, of how they differ from questions that are solely medical in nature. For example, the issue of causation in medicine differs substantially from the view of cuasation used in determining entitlement to workers' compensation. In many cases the requirement for compensability may be met when causation, tested by the more stringent medical standard, may not be present. The lack of physician's understanding of the issues to which his medical reports relates may also surface in other areas. For example, the value of the physician's report may be affected substantially if it focuses only upon the question whether byssinosis exists in the claimant rather than upon the broader question whether cotton dust exposure has contributed to cause lung impairment. A need exists for education of panel physicians in this area.

There is also substantial evidence that significant benefits would be derived if panel physicians had the opportunity to exchange information and ideas about medically related issues. Such exchanges seem imperative in light of the major uncertainties that have surrounded byssinosis and the evidence that, because of these uncertainties, the predilections of individual physicians may assume importance in some cases.

Because of considerations such as those described above, the committee believes that the Commission should hold at least annual sessions in which all panel physicians come together and that these sessions should be used to inform panel physicians about the Workers' Compensation Act as it relates to their involvement, to keep them abreast of developments in this area and, perhaps, in the medical area as well, to discuss problems that exist in relation to medical reports, examinations, disability and related issues, and to provide the physicians an opportunity to exchange information and ideas.

A potential conflict of interest problem arises in some cases because a panel physician may be retained by employers individually to perform examinations of workers or because the industry provides substantial financial support to reserach in which the physician is involved. Because of the limited number of pulmonary specialists available to serve on the panel the committee does not believe that it is practical to disqualify a physician from service on the panel on the basis that he has accepted referrals from individual employers. Further, the committee believes that adoption of such a rule would have the effect of depriving the system of physicians who contribute significantly to the panel's effectiveness. Nevertheless, the commitee believes that the Commission should be aware of the extent of a panel physician's work for employers or industry and should consider the appropriateness of his continued service on the panel when the financial tie-in between the physician and employers or the industry is great, as when major research funding is provided to the physician or when a retainer or equivalent arrangement of considerable magnitude is in effect.

The greatest concern posed by this practice has arisen because a few employers have elected to use primarily one physician to perform one examination of workers. Several problems are created by this practice. Sending workers to physicians, when other available pulmonary specialists are closer to their homes, involves greater travel and time burdens for the workers. The fact, discussed earlier in this report, that some physicians have acquired reputations for being favorable for employers or workers is likely to cause workers to question examination results when this practice is followed. To avoid these problems, the committee believes that the Commission should encourage employers to discontinue the practice and to utilize, to the extent feasible, all pulmonary specialists who are reasonably available in the area.

Recommendations

17. The Industrial Commission should undertake to inform panel physicians about relevant workers' compensation law and developments and to provide opportunities for panel physicians to discuss problems and exchange information and ideas relating to medical issues and procedures in byssinosis cases. A meeting of all panel physicians should be held at least annually for this purpose.

18. The Industrial Commission should encourage employers to discontinue the practice of sending large numbers of workers to the same physician for examination and to utilize, to the extent feasible, all pulmonary specialists who are reasonably available in the area in providing for examination of workers.

DOCKETING

The committee examined the procedures used by the Commission to schedule hearings in byssinosis and other cases. These procedures enable the Commission to determine the number of cases awaiting hearing in each county on a current basis. They readily isolate on a current basis the counties in which the need to schedule hearings is greatest by identifying in one group all counties in which hearings have not been held within the previous three months and in a second group all counties in which hearings have not been held within the previous five months or in which fifty cases are pending for hearing (the approximate number of cases necessary to schedule a full week of hearings). In selecting cases for inclusion on the hearing docket, priority is given to the oldest pending cases. The order in which cases selected for the docket will be heard is in the discretion of the hearing officer. Cases that are scheduled but cannot be heard because of lack of time are continued until the next hearing docket is set for that county. The committee believes that these procedures are reasonable.

Studies were undertaken to determine if these procedures operate effectively to insure that byssinosis cases are in fact scheduled for hearing within a reasonable time. For this purpose, six months was adopted as a reasonable time. For the 35 counties in which first hearings in byssinosis cases were scheduled in the time period involved, data was collected relating to the last three visits by a hearing officer to determine the time between each visit. The average time between visits exceeded 6 months in only 14 of the 35 counties. In 11 of the 14 counties, the average time between visits of the hearing officer ranged from 6 1/2 to 8 months. In the remaining 3 counties, the average time between visits ranged from 8 1/2 to 9 1/2 months. In many of the instances in which longer than six months passed before a hearing was scheduled in a county, the number of byssinosis cases on the docket was extremely small - usually one or two. Although this data shows some shortfall in meeting the six-month goal, some discrepancy seems inevitable in light of the many variables involved in scheduling separate hearings in each of 100 counties.

A review of the age of individual cases was also undertaken as a general gauge of the effectiveness of existing docketing practices. This review showed that two-thirds of all cases in which more than six months lapsed between the request for a hearing and the hearing date were concentrated in seven counties in which a relatively large number of byssinosis claims arise: Gaston, Guilford, Halifax, Harnett, Richmond, and Scotland. A detailed analysis of the cases in two of these counties - Scotland and Richmond - was conducted. In Scotland County a hearing had not been held within six months in approximately 20 percent of the cases because either the cases had not been scheduled for hearing within that time or, having been scheduled, were continued because they could not be heard in the available time. Approximately 25 percent of the cases in Richmond County fell into this category. Although the full dimensions of any problem that may exist in these counties cannot be identified because our study did not collect data relating to the number of non-byssinosis claims, it does susggest that special attention probably should be directed to these counties. Agreement exists that hearings in byssinosis cases generally require more time than other hearings. Modification of the general standards used in determining the need to schedule hearings may be needed in counties in which a significant number of byssinosis claims arise. For example, if a hearing is scheduled in one of these counties only after 50 claims are pending in the county, and an appreciable number of them are byssinosis claims, the likelihood that some hearings would have to be continued at the end of the week is great.

Recommendations

19. Although discretion should remain in the hearing officer to determine the order in which cases selected for the docket will be heard, Commission procedures should provide that older cases will be given priority for early hearing unless other considerations clearly indicate the need for a different order.

20. The Commission should modify its procedures to take into account the special problems that arise in counties in which a significant number of byssinosis cases arise to provide for either special review of pending cases in these counties or different general criteria to determine when hearings should be scheduled in them.

21. When, because of size or other considerations, the number of claims in a county in a six-month period is too small to fill a full week's docket, the Commission should continue its recent practice of combining several counties in establishing a docket for a particular week.

SETTLEMENTS

Settlements play a major role in the disposition of byssinosis cases--disposition of 93 percent of the cases in which compensation has been paid has been through settlement. Although operation of the system to permit final disposition of the overwhelming majority of cases withou litigation is desirable, this fact emphasizes the need for procedures to insure the adequacy and fairness of settlements.

The committee has examined the Commission's procedures in reviewing and approving settlements, identified the factors considered by the Commission in this process, and, through its staff, has compared the amounts received in settlements, both when the claimant was and was not represented by an attorney, with amounts received in awards and has reviewed in detail on a sample basis a number of individual cases that were settled. Although a comprehensive study of every case individually was not possible, the data we have studied indicates that existing procedures and practices of the Commission, on the whole, are adequate and that the settlements approved under them are reasonable. At our request the Commission has provided a written statement of its procedures and practices in reviewing and approving settlements. We believe that this step is a good one and that this written statement should be generally available and should be revised regularly to reflect any changes in procedures that may be adopted.

The committee fully recognizes that flexibility is essential to the review and approval process. General public acceptance of the fairness of the process, however, is equally important. Public acceptance would be promoted, the committee believes, if the relevance of factors considered by the Commission, when it is not obvious from the description itself, is identified in the statement. For example, is the age of the employee relevant only in projecting his life expectancy or for this and other purposes? Are unrelated medical problems taken into account to apportion disability between the disease and the unrelated condition and is smoking considered to apportion disability from lung impairment between it and cotton dust exposure? An appraisal of the fairness of a settlement is difficult without an understanding of the importance the Commission attaches to these factors. In considering possible savings of attorney fees, is the possibility that the employer may be charged with liability for them considered? In item 7 listed by the Commission, we believe that the date of disablement rather than the date of last exposure should be used.

In over one-fourth of the cases that are settled, the claimant is not represented by an attorney. The typical settlement agreement is one in which the claimant accepts a designated lump sum and relinquishes all further rights to compensation, including medical payments. Under these circumstances, uncertainty necessarily arises concerning the claimant's understanding of the nature and consequences of the agreement he signs. Both the complexity of the transaction and the consequences of the agreement suggest the need of the claimant for independent advice. The committee believes that a means for providing an opportunity to the claimant to acquire such advice can be provided without introducing unnecessary delay in processing settlement agreements. A thirty day waiting period should apply to clincher type settlement agreements signed by claimants not represented by an attorney during which Commission approval of the agreement will be withheld. Upon receipt of the settlement agreement from a non-represented claimant the Commission should notify the claimant in writing that the agreement has been received, that he may want to obtain advice relating to the agreement before it become final, and that he may telephone the Commission is he has questions or desires additional information. The letter should also advise the claimant that unless he notifies the Commission by a specific date (20 days from the date of the notice) that he no longer wishes to be bound by the agreement, the Commission will review and approve it unless other grounds for disapproval exist and that, upon approval, it will terminate all rights in the claimant to receive further compensation or medical benefits.

Adoption of this procedure should not deter the Commission from contacting claimants on its own when its review of the file indicates that contact should be made before the agreement is approved.

Recommendations

22. The practices and procedures used by the Commission in review and approval of settlement should be in writing, made generally available, and, when necessary, the importance of specific factors to the review process should be expressly stated.

23. The Commission should adopt a 30-day waiting period during which approval of clincher agreements will be withheld in cases in which the claimant is not represented by an attorney. A letter containing a copy of the agreement shall be sent to non-represented claimants by certified mail. The letter should notify the claimant that the agreement has been received, that he may want to seek advice relating to the agreement, that he may telephone the Commission is he has questions or desires additional information, that he may notify the Commission within 20 days that he no longer wishes to be bound by the agreement, and that he will lose the right to receive further compensation or medical benefits when the agreement is approved.

GUIDANCE TO CLAIMANTS

Providing adequate guidance to workers seeking to file compensation claims is essential. The need is particularly acute when a worker is not represented by an attorney. The worker may have little understanding, if any, of the action required of him at any stage of the claims process: when an employer notifies the Commission of a worker's breathing problem, when a claim is filed by the worker, when the panel physician's report is completed, and when a case is dismissed for lack of pursuit. Major responsibility for meeting this need must be assumed by the Commission.

The committee believes that guidance can be most effectively provided by giving specific and simple directions to a claimant at each stage of the claims process of the action he must take in order to continue the processing of his claim. Thus, when a worker files a claim the Commission should inform the worker of the next step to take in processing the claim. Or when dismissal of a claim for lack of pursuit is under consideration, the Commission should inform the claimant of the action he must take to keep the claim active.

Recommendation

24. The Industrial Commission should provide, by letter or otherwise, specific and simple directions to each claimant at each stage of the claims process of the action he must take in order to continue the processing of his claim.

RULE-MAKING

The Commission has adopted no formal procedures for rule-making. In response to complaints of surprise and lack of notice, the Commission attempted informal involvement of interested parties in connection with some rule changes, but this procedure did not work out satisfactorily. Recommendations have been made to the committee to subject the Commission to the rule-making procedures of the Administrative Procedure Act, either by removal of the Commission's exemption from the provisions of the Act or by voluntary adoption by the Commission. Time has not permitted the committee to explore fully the effects of the application of the Administrative Procedure Act to the Commission.

However, the committee believes that current Commission procedures are inadequate and recommends that the Commission adopt formal procedures that provide for notice to and opportunity for hearing by interested parties in connection with the adoption or change of rules or procedures that affect the substantive rights of claimants for workers' compensation.

Recommendation

25. The Commission should adopt formal procedures for rule-making that provide for notice to and opportunity for hearing by interested parties in connection with the adoption or change of rules or procedures that affect the substantive rights of claimants for workers' compensation.

MINORITY REPORT OF THE GOVERNOR'S
BROWN LUNG STUDY COMMITTEE

Submitted by: Mrs. Florence Sandlin

on behalf of the
Brown Lung Association

Honorable James B. Hunt, Jr.
The Governor's Office
Administration Building
Raleigh, North Carolina 27611

Dear Governor Hunt:

I do not endorse the entire report as it is written. I do endorse most of the things in the report. Recommendations 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 (parts 1-5,8), 15, 16, 17, 19, 20, 21, and 23 are fine as written. Recommendations 22 and 24 are approved with the exception that it is left to the Industrial Commission to write these letters in everyday language. Recommendation 18 is fine but does not provide a way to exclude doctors from the byssinosis panel who have excess income from the industry.

I do not endorse recommendations 3, 13 (parts 6, 7), and 14. My reasons for being unable to endorse these recommendations are explained in the minority report which is attached.

For just compensation,

Florence Sandlin

Governor Hunt's creation of the Committee to study problems with compensating brown lung victims and with the North Carolina Industrial Commission makes him the first Governor of any state to recognize the seriousness of the brown lung problem and to devote resources to finding solutions. Governor Hunt is to be commended for his concern about the problem, although his limitation on the scope of the Committee's charge prevented to panel from considering all the issues that needed to be addressed.

The Brown Lung Study Committee worked hard and conscientiously through six meetings and several days of public hearings. Ben Gilbert, the staff for the Committee performed an excellent job. He put in many long hours of research and investigation.

The Brown Lung Study Committee has made twenty-four recommendations to Governor Hunt on the ways in which the North Carolina Industrial Commission should improve its procedures for brown lung compensation. The number and breath of the recommendations affirms that the Industrial Commission's policies and procedures had many shortcomings. The Committee's recommendations touch on several of the areas in which improvement is desperately needed. New procedures have been recommended that will speed up the initial filing and information gathering process and the Committee made several recommendations which will help to inform workers about the compensation process and their rights. The Committee recognized the need for additional staffing and funds, and recommended that adequate funding be provided. Also the Committee has recommended there be a review of the Industrial Commission in six months todetermine the progress in the implementation and the effectiveness of these recommendations.

The Brown Lung Association made many proposals which were accepted by the majority of the Committee and many which were not. This is to be expected given the composition of the panel. The Brown Lung Association did not expect that all of its proposals (which are attached) or proposals of others who represented textile workers would be adopted. However, the majority of the Committee endorsed some proposals that are detrimental to brown lung victims and side-stepped other issues of grave importance. Because of the serious and fundamental disagreements outlined below, the Brown Lung Association cannot endorse the majority report.

Our complaints about the way the Industrial Commission handles brown lung claims are not solely that they are inefficient. We came to the Governor for help because there are serious problems at the Industrial Commission. We approve of most of the Committee's recommendations but they fail to deal with our complaints that basic fairness is lacking from the Industrial Commission. We still believe the Industrial Commission and its byssinosis procedures need a major overhaul. This Committee because of its instruction and composition was not willing to propose the far reaching changes that are needed.

A major source of delay in brown lung claims is caused by the high rate of litigation involved with these claims. Over 80% of brown lung compensation claims are litigated. Excessive litigation and therefore excessive delay of brown lung claims are caused by the mills continued resistance to paying valid compensation claims and the Industrial Commission's attitudes and policies that allow the delaying tactics to continue. Presumptive diagnosis, we believe, would substantially reduce litigation. This proposal, which was not adopted by the Committee, is necessary if the compensation system is going to work quickly. It is especially meaningful in light of the number of compensation claims for brown lung disease that will be filed in the coming years.

A second major disagreement with the majority is their resolution of the apportionment issue. There is no case law to support the recent appoach favored by some but not all of the Industrial Commission of reducing the benefits of an employee who has no wage earning capacity because the disability is worsened by other factors in addition to the occupational disease. In fact, the case law says the opposite.

The Study Committee, after receiving written arguments and testimony, voted by majority to include a quantitative question among the list of guidelines for panel doctors to use when making their report. The Brown Lung Association is disappointed that the Study Committee voted to encourage and support the Industrial Commission's departure from case law. It is our feeling that the Industrial Commission's job is to administer the law, not make it, and until the Industrial Commission's decisions are consistant with each other and the case law there will be litigation and delay.

Our third major disagreement with the majority report is recommendation 14 which would create anouther panel of mostly pulmonary specialists to resolve several of the medical issues which the Committee identified. It is, as the majority report points out, critical that these problems be resolved if brown lung claims are to move swiftly and surely through the compensation process. The Brown Lung Association feels that this Study Committee was in a position to confront the difficult questions surrounding this area of brown lung compensation. They had heard testimony and received written information on this issue; the Committee had sufficient expertise and experience to deal with the questions.

Ten Brown Lung Association members who filed for compensation have died since this Committee began work. We do not haye time to wait for another study committee.

The existing Byssinosis Panel of the Industrial Commission would be the more appropriate group to resolve these issues as compared to any new panel because they in combination with textile workers and lawyers have the best workable knowledge of the compensation process and the problems involved with brown lung. This would speed the resolution and implementation of the medical issues because the panel doctors would be the ones to put into practice any forthcoming recommendations.

A fourth area of disagreement with the majority report is the issue of open records. The Brown Lung Association believes that the public should have access to Industrial Commission records. It remains a serious problem that brown lung victims themselves cannot see their own files (unless they don't have a lawyer). We support Governor Hunt's position that these records be made available to the public and hope the Governor will sponsor legislation to that effect.

In addition to these major differences with the majority report, the following are other points of disagreement:

- The Committee's recommendations do not include a mechanism for excluding from the Byssinosis panel doctors who have excessive income from textile mills or who have a large referral business from the mills.
- The tone of the majority report encourages settlements. The Brown Lung Association believes brown lung victims should be able to get swift and fair awards from the Industrial Commission.
- The Committee's recommendations leave it to the Industrial Commission to write non-technical letters to claimants who are not represented by attorneys regarding settlement and dismissals. Past experience shows many textile workers don't understand communications from the Industrial Commission even letters supposedly written in plain English.
- The Committee's recommendation that claimants list all treatment he or she has received from physicians for the past 20 years is too long a period. People have a difficult time remembering that far back and it creates an unnecessary burden on the claimant.

As we have explained, the Brown Lung Association can not endorse the majority report of the Brown Lung Study Committee. We urge Governor Hunt to study our minority report and the proposals we make. We hope that the Governor in his deliberations will remember that it was brown lung victims who initiated the investigation, and we have come to feel that we have had a minority voice in an investigation which was supposed to serve our interests. Once the Governor has completed his study of all the recommendations, we hope he will act with all the swiftness possible.

Mr. GORE. Without objection, we will include those portions of the documents you provided to us in the record as the staff deems appropriate. We cannot put everything in because of space problems, but some of it clearly needs to be in, and we appreciate your providing that for the record.

Also, I neglected to ask unanimous consent earlier that immediately following my opening statement the statement of our ranking minority member, Mr. Walker, be included in the record.

Mr. GORE. I will hold questions of Dr. Kunstling until we hear from the final member of this panel, Paul Michaels, a lawyer with Michael & Jernigan, in Raleigh, N.C.

Welcome, and please proceed.

STATEMENT OF PAUL MICHAELS, ATTORNEY-AT-LAW, MICHAELS & JERNIGAN, RALEIGH, N.C.

Mr. MICHAELS. Mr. Chairman, I appreciate the opportunity to testify today. I am a plaintiffs' attorney from North Carolina. I have been involved in handling occupational disease cases for approximately 7 years of my 9 years of practice; 90 percent of my practice is devoted to handling occupational disease cases.

I think it would be helpful for this subcommittee to hear about the North Carolina procedures, and then I will relate how Mr. Dowdy almost fell through the cracks. We hope he has not.

First of all, you have to understand that occupational diseases are quite new, even in the workmen's compensation area, and very few plaintiffs' attorneys handle these types of cases. In North Carolina, virtually all workmen's compensation cases are defended by large firms that are in front of our workmen's commission every day, traveling all around the State, whereas plaintiffs are represented by individual lawyers, generally from their hometown. Early on, in occupational disease cases, plaintiffs' lawyers did not know anything about them, and when they only handle three to five a year, they just were not equipped to cope with the problems presented in a type of case like this.

Luckily, a number of attorneys started handling them, and we were able to narrow the gap and actually probably go beyond the defense attorneys in expertise for a period of time, because we were handling so many. I travel all over the State of North Carolina, representing textile workers, and on virtually a pro bono basis I have been in Virginia to try to help there, Georgia, and South Carolina.

In North Carolina, we have an industrial commission which has approximately 12 deputy commissioners. These deputy commissioners sit as both judge and jury; they find the facts and also determine the legal questions. They hear all the evidence, render an opinion and award. That opinion and award can be appealed to our full commission, on which three members sit. They may review it, change findings of fact, reverse, or affirm. The right of appeal from there goes to the Court of Appeals for North Carolina. A three-member panel will review each case, hear arguments, and decide. And then you have either an automatic right of appeal to our supreme court or you have a right by writ of certiorari, depending on the decision.

When a man such as Mr. Dowdy comes to us, we will make an initial determination as to whether we think he should file a claim. When we file a claim, we file a form with our industrial commission, stating his work history and that we feel he has an occupational disease relating to his cotton dust exposure. Upon filing a claim, the claim is sent to the insurance carrier for the mill, or if the mill was self-insured, it is sent to the mill. They ask the carrier or the mill, "Will you agree to pay for a panel examination of this claimant?"

A panel examination means an examination by a doctor who is on the North Carolina Industrial Commission's Textile Occupational Disease Panel. We have about 15 doctors throughout the State, all board certified and most of them are board certified in pulmonary medicine, such as Dr. Kunstling, who is the head of it. Generally, that doctor is picked at random, if the company will agree. After a few years, we got them to agree in 90 percent of the cases to at least pay without prejudice for this panel examination. The industrial commission picks the doctor at random, generally though within the geographical area where the claimant resides.

Information is gathered, both on his basic medical information from his doctors, plus information from the mill relating to exposure and surveillance tests--breathing tests; as Mr. Dowdy called them, blowing tests. These are all sent to the doctor. Then Mr. Dowdy goes to the doctor. The doctor takes a history. The doctor examines him. The doctor administers the pulmonary function test. The doctor subsequently renders a report, which all parties get, and at that time we evaluate the report and determine whether we should go forward or not.

Many times a report is unfavorable, and you have to evaluate it to determine whether your client has given an accurate history of his problems. As Dr. Kunstling said, this diagnosis is heavily dependent on an accurate history. Second, the tests, are they accurate? And third, you have to look at which doctor rendered the report. As he said, some diagnosed it a lot less than others, some diagnosed it a lot more.

At that point of time, we would request a hearing, if we felt we should go forward, or we would dismiss the case Upon requesting the hearing, it is then set before a deputy commissioner in the county in which the mill is where the person worked. When it is set, we try the case there. The claimant would testify, various mill personnel would testify perhaps, other documents would be introduced, local medical doctors might be called upon to testify, and then we have to go to where the pulmonary expert is, the panel doctor to whom he was sent. We adjourn the initial hearing, and then maybe months later we then go to where the expert is, say Dr. Kunstling, to his county and take his testimony.

Subsequent to that, a decision is rendered in the form of an opinion and award, as I described; We have the appellate procedures from that point on.

In other States, the laws are somewhat different. The best thing about the North Carolina Act is that 90 percent of the people who file byssinosis claims at least get that free doctor's examination, which they could not otherwise afford. Sometimes we have to work out a way that they get a second examination if we do not agree with that initial examination. I have served on the Governor's panel in North Carolina, I have testified before the Virginia committee and the Georgia committee concerning the idea of establishing a panel. The clinical experience of our doctors is unmatched throughout the Southeast, a major textile area. I have recommended to people in Alabama, Georgia, and Virginia to send at least their initial cases in North Carolina to doctors like Dr. Kunstling because he has the clinical experience, not just the textbook experience, to diagnose this type of disease. He would give them a good start in handling these claims on a long-term basis, and we are hopeful that the local clinicians will gain knowledge from them. I have found that, with the local doctors, the textbook method restricts their diagnosis, but as they see more people, they understand the disease better.

In Mr. Dowdy's case, he was diagnosed essentially in 1973 by Dr. Battagelli. He was sent to Dr. Battagelli by the mill. Dr. Battagelli did not say that he had byssinosis but indicated that he was certainly a reactor. He would not make the diagnosis of byssinosis at the time. Dr. Battagelli was a member of the panel. He was one of the more conservative ones.

He did recommend that this man be taken out of exposure in the cardroom, and Mr. Dowdy was not. The cardroom is one of the highest risk areas in the whole business. Mr. Dowdy then worked approximately 3 more years exposed to these high levels of dust and finally had to quit. He filed his claim within ample time and requested a medical examination. This is still in 1978, and we had not had the Governor's panel, and the procedures still were not as smooth. They denied him an examination, saying "You failed to show that Dr. Battagelli's examination was not objective." So we had to arrange that Mr. Dowdy see a doctor at Duke on his own.

They have never really raised the defense that he does not have byssinosis. They will candidly admit that he does. Their own doctor indicated in a handwritten note:

> To Whom It May Concern: I am recommending that he be placed on medical leave of absence for three to six months if he gets any better out of the cotton dust environment. In the event that he approves, which I doubt, I have advised him to: 1. Apply for Social Security disability retirement; 2. Dan River pension [and this is the Fieldcrest doctor]; 3. Virginia workmen's compensation for byssinosis; 4. Fieldcrest disability retirement; 5. North Carolina Workmen's Compensation disability due to byssinosis.

Their main defense has been that Mr. Dowdy still did not file his claim in time because he actually was disabled in 1973 and knew about it. But Mr. Dowdy worked 3 more years. That motion to dismiss was immediately denied by the chairman of our industrial commission. The hearings were held. The deputy awarded him limited benefits, although he found him totally incapacitated because of his lung damage. They awarded him merely lung damage, which was $20,000. At this time, under total disability benefits, Mr. Dowdy is out $35,000 right now.

Mr. **Gore**. The defense at that stage was that he knew about it in 1973 and did not file until later; but when he knew about it in 1973, he tried to get the disease identified, and the doctor turned him down. Is that right?

Mr. **Michaels**. It was a company referral.

Mr. GORE. But he continued to work, and they kept him in this high-risk area, which is like a "catch-22."

Mr. MICHAELS. Exactly. Their basic point was, although he was not totally disabled until March 1, 1976, he obviously missed days because of his severe breathing problem between 1973 and 1976, so he had at least a partial disability and should have filed. That is the issue that has gone up to our appellate courts. We got it reversed in full commission, and Fieldcrest appealed the case before we could even appeal it. So we are on a cross-appeal from the full commission, where we won total disability benefits there for him. At the present time, his accrued benefits that he still has not received are $35,000. We have filed briefs, and we are waiting to argue in the court of appeals.

Our system in North Carolina is fairly good. Where we have encountered a lot of problems is in the appellate stages, dealing with our court of appeals and our supreme court, because of the problem in educating them on the disease.

Mr. GORE. It is a good illustration of some of the procedural traps that victims can encounter in trying to get compensation. In his case despite the doctor's recommendation that he be removed from the cardroom, he was kept there for another 3½ years. And later on this was used against him. It is very interesting.

This is a good case study of how one complicated occupational disease, where the scientific evidence is difficult to pin down with certainty, has been approached by a State in a novel way.

We have a vote on the floor, and I want to pursue this at some length with you when we come back. With your indulgence, we will have a recess for about 8 or 9 minutes.

[Recess taken.]

Mr. GORE. The subcommittee will come back to order.

Mr. Michaels, had you completed your statement?

Mr. MICHAELS. Yes.

Mr. GORE. As I started to say just before the break for the vote, this is a very interesting case study. Let me ask you first, Dr. Kunstling. You stated in your testimony that a distinction is made between scientific causation and legally determined causation in workmen's compensation cases. Do you believe that such a distinction is valid, and if so, is it desirable?

Dr. KUNSTLING. I believe that there is a real distinction. Scientific "causation" is established according to statistical laws, and, in general, a probability considerably greater than 51 percent is necessary in order to satisfy the scientific and medical communities. I think that very often in medicine we have to make a decision based on an incomplete knowledge. In workmen's compensation cases, we are asked to make decisions based on a reasonable degree of medical certainty. This is somewhat different than would be the case of what we would require to achieve a widely accepted consensus in the scientific community where there would be no longer doubt or controversy. I think when you read the medical literature on byssinosis, you still see papers that are drawing varying conclusions.

There is a lot of controversy. When I attend scientific meetings about byssinosis, there is controversy. There are criticisms of the scientific studies that have been done, of one type or another. Yet, I think from information that has been gathered thus far and from evidence that is available, most of us in North Carolina feel that there is a reasonable degree of evidence to support compensation of workers for byssinosis.

Mr. GORE. One of the major issues involved in this whole area is, of course, causation. Often it is extremely difficult to prove causation scientifically. One of the reasons is the state of the art in science is inadequate to the task; this is often true. In cases like this one, there is established a legal threshold of causation, but it has implications for who bears the burden. There are lots of other examples that we will go into during the course of the hearing.

Do you believe that a distinction between scientific causation and legally determined causation should be used by courts when they are confronted with causation questions or toxic substances generally?

Dr. KUNSTLING. Yes, I do. It may be decades before the scientific controversy is resolved. There are many workers who cannot wait that long.

Mr. GORE. We have to go that route. We have to.

You noted that some of the doctors in Mr. Dowdy's case were extremely reluctant to diagnose byssinosis. Why were they so reluctant to come up with such a diagnosis?

Dr. KUNSTLING. Many doctors have held that in order to make a diagnosis of byssinosis, there has to be a history of the so-called Monday morning phenomena, the acute symptoms which occur on the first day of the workweek. Without this history, they do not have byssinosis; they might have chronic obstructive lung disease, but this is not byssinosis.

There has been a lot of argument of the definition of what is byssinosis, and I think we have reached the point in North Carolina, among the physicians on the textile panel, that really what we are dealing with is chronic obstructive lung disease. Whether or not that Monday morning phenomenon is present is really not that important. The history is often unreliable on that particular point, and the medical evidence suggests that there is an increased risk of developing chronic obstructive lung disease in the textile industry, regardless of whether or not the Monday morning phenomenon is present. So there have been a lot of problems with semantics. I think we have overcome that. Now I think these medical reports which date from 1973 to 1979 reflect a lot of the controversy that was occurring at that time.

Mr. GORE. OSHA recently announced that it was reexamining the cotton dust regulations that it issued in 1978. Do you have any opinion on the impact that might be associated with an increase in permissible cotton dust exposure levels when it comes to the incidence of byssinosis?

Dr. KUNSTLING. The actual agent which causes byssinosis has not been identified, and it is hard to be certain precisely what cotton dust standard is a correct one or a safe one to have. I think that the standards of OSHA, as adopted, reflect the feeling that since we do not know precisely what the cause of byssinosis is, we should keep the dust level low in order to protect the workers. Relaxing the dust standards would probably increase the risk for workers to develop byssinosis. I think also that it is possible to carry out surveillance programs and protect lung diseases in workers long before they reach the stage of Mr. Dowdy and remove them from the environment before they develop severe lung disease.

Mr. GORE. They found it with Mr. Dowdy and did not remove him.

Dr. KUNSTLING. That is right.

Mr. GORE. So a screening test of that kind might not work.

Dr. KUNSTLING. I do not think they did what they should have.

Mr. GORE. Mr. Michaels, in evaluating the effectiveness of the expert panel for byssinosis set up in North Carolina, how would you rate its success in resolving ongoing disputes about the disease, the issue of causation, the issues related to compensation, and the work relatedness of the symptoms with the exposure? Has it been an effective mechanism?

Mr. MICHAELS. Yes, I think so. It has given a select group of physicians the clinical experience necessary to diagnose the disease on as consistent a basis as we can; and secondly, it gives you 15 physicians who are used to coming into court and testifying as to these complex issues. In virtually every case, the diagnosis of byssinosis is contested still. I spent all day yesterday with a physician, trying five cases against various mills in North Carolina, that were contested.

Mr. GORE. Unless we can come up with better research and development and a better scientific means of proving causation in specific cases, we simply have to have approaches like the one developed in North Carolina, it seems to me. Here you have a large cluster of work related diseases, where the scientific ability to establish causation and work relatedness of the symptoms is extremely difficult and puts the kind of burden on Mr. Dowdy that he described to us and confronted him with all these problems in getting justice. So the State government correlated all of the symptoms and all of the circumstances and said, "We are going to draw broad parameters. We are going to recognize that most of these cases within a particular description deserve compensation."

Now, as society confronts national problems similar to this, like asbestosis, we have two ways to go. Either we can continue trying to fight out the scientific issues, which we will have to do in any event, or we can concentrate on trying to develop mechanisms like this one to do justice and not wait for the state-of-the-art in science to let us fix causation precisely.

Mr. MICHAELS. Mr. Chairman, I would say one thing about the panel approach which has to be taken cautiously. It is how do you put the doctors on the panel, and what procedures do you institute to take them off. You are talking about 15 or 20 physicians. We do not have any legislative statement as to what the diagnosis should be. This is just a meeting of the doctors and the statement by the doctors. Not all the doctors follow that. We have doctors at one end of the spectrum and some at the other. The key is where they came from. If you have most of the doctors in the middle, those are the doctors who get cases done.

If they go to a doctor like Dr. Kunstling, both sides can accept his diagnosis a lot easier than some of the others. So that is what reduces some of the litigation.

Mr. GORE. This system, even though it offers a better chance for relief than any other State has with respect to this disease, it still has substantial problems with it, does it not? Maybe I am asking the wrong person.

Mr. MICHAELS. I cannot say substantial problems, but I think one of the main difficulties we are having right now is with our appellate courts and some of their decisions; as a plaintiffs' attorney, I have had to take issue with them, and I believe it is partly due to the educational process.

You cannot try a byssinosis case. It is still a workmens' compensation case. You cannot bring in experts from all over the country and try every one of them for 2 weeks. Our whole system would fall apart. The appellate court is tied to the record we send up, and then we brief them. I cannot try a case for 2 weeks and send it up. There is where we run into a stumbling block.

Mr. GORE. In a study of the North Carolina system, prepared for the U.S. Department of Labor, a sample of pending cases revealed that it took almost 6 months from the filing date to receive an initial medical evaluation, over a year to receive an initial informal hearing, over a year-and-a-half for a second hearing, and over 2 years to receive an initial opinion from a deputy commissioner which is subject to later review by the full commission and the courts.

Has the time for this claims process been improved since that study, or is it roughly the same now?

Mr. MICHAELS. It has reasonably improved. Most people get to the doctor within 3 months now. I would estimate that the initial hearing would be held within 4 to 6 months after we get the doctor's report. But most cases are not decided until at least a year after the person has filed a claim, or possibly a year-and-a-half. We have had tremendous difficulty getting the transcript of a hearing when the opinion and award is filed by the initial deputy commissioner. Upon appeal, the transcript has to be prepared. With the number of cases we have, sometimes it takes 6 months to a year just to get a transcript done.

Mr. GORE. Mr. Dowdy, let me ask you again, you first filed your claim in 1976; is that right?

Mr. DOWDY. 1978.

Mr. GORE. And you still have not received any compensation; is that correct?

Mr. DOWDY. No, I have not.

Mr. GORE. That is a long time, Mr. Michaels.

Have they told you when to expect compensation?

Mr. DOWDY. No. We just keep appealing.

Mr. GORE. That is clearly a long time for him to have to wait. Is there any way that this system in North Carolina—which is better than what other States have done—can be improved?

Mr. MICHAELS. We recently instituted a procedure where, once an award is made, it carries interest. When they appealed, there was no interest carried. That was one way we hoped to discourage some appeals. The appellate process could be a lot quicker, and the transcripts could be provided quicker.

Mr. GORE. Would you recommend going to a system like the black lung program?

Mr. MICHAELS. I am not as familiar with the black lung program. I really do not think I should comment on it.

Mr. GORE. Dr. Kunstling, do you want to comment on it? You do not have to, if you are not familiar with it.

Dr. KUNSTLING. I have very limited experience with it. My experience with the black lung program has been unsatisfactory.

Mr. GORE. Who bears the cost of your appeals, Mr. Dowdy?

Mr. DOWDY. Fieldcrest.

Mr. MICHAELS. Fieldcrest has appealed the cases to date. It has been their responsibility. If the worker appeals his case, the transcript is provided for free, and we can also then file an application as a pauper to take it up further. At that time, most of these people only have social security disability benefits. That is what I contend the mills have tried to do for years, since we have had social security disability, which is to ease them out of the mill and help them get a social security disability and the problem in a sense goes away. What you have is an occupational disease; you do not have a broken arm. You have something that came on over 20 years and gradually got worse. These people are not even aware of it; it is publicity that gets them to file a claim in the first place.

Mr. GORE. Ninety-three percent of all the compensation payments made over the last 10 years have been in the form of settlement negotiations and clincher agreements. These compromise agreements usually average about $10,000 less than the industrial commission awards, $15,000 versus $25,000, and are usually reduced because of other causes of disability. In addition, clincher agreements have no provision for future medical coverage, while awards leave employers liable for future medical coverage.

How fair do you feel that these settlements and clincher agreements are as a group? Do you think that they adequately compensate the victim?

Mr. MICHAELS. No. It puts a burden on the medicare system, because persons on social security get disability and 2 years later they go on medicare. They have a gap of no coverage, and then they have medicare, and the medicare system has to support it. Of course, the clinchers and the settlements are made on the basis of assessing various risks involved in each case. Naturally, I have been involved in a great number. I would estimate that we dismissed about 25 percent of our cases, settled about 40 to 45 percent, and the balance are tried. I do not think that the amounts being paid in settlement are fair.

Mr. GORE. Now let me ask you about the burden of proof, for proving work-related causation. In this North Carolina program, the burden is placed on the injured worker, and the employers and their insurance carriers benefit from a lack of a standardized definition through lengthy delays and endless doctor shopping on the part of claimants. Is that a fair statement?

Mr. MICHAELS. Doctor shopping is in some cases on the part of the plaintiff but more than likely on the part of the defendant. I think that is a good statement of the issue: the burden is placed on the claimant, a person who has worked in the textile mills for years and years and years. You are asking them to go into a court of law and use their verbal skills to testify as to how the problem developed, because that is the primary means to the diagnosis. That is where the system really has problems, requiring this person to prove his entire case, even though he might have worked in the cardroom for 40 years.

That is not to say that every cardroom worker with obstructive lung disease may have it. But if we are going to streamline it, then presumptions might be the answer, at least a rebuttable presumption.

Mr. **Gore**. But in Mr. Dowdy's case, and correct me if I am wrong, the mill doctor diagnoses byssinosis? Is that right?

Mr. **Michaels**. I think he diagnosed byssinosis as a result of what Battagelli did.

Mr. **Gore**. But the company is still fighting that?

Mr. **Michaels**. The first reason they did not pay is, as I said, they eased him out of the mill and hoped it would go away. Now they are fighting it based on the statute of limitations and that solely. In other States, the statute of limitations is not as favorable as in North Carolina, and that is a key problem. In Georgia, if you do not file within a year of coming out of work, your exposure, your case is gone forever. In North Carolina we at least file for people who left the mill in the sixties and the seventies, because we can file within 2 years of the diagnosis, not the last exposure.

Mr. **Gore**. The claimant also has the burden of proof to show that they are at an increased risk, compared with nonexposed populations; is that correct?

Mr. **Michaels**. Right.

Mr. **Gore**. What kinds of problems does that cause?

Mr. **Michaels**. Virtually none. It is pretty well established from the opening, right on down through the process, to the weave room and virtually every doctor on our panel will say they are at an increased risk.

Mr. **Gore**. In evaluating the effectiveness of an income maintenance program, economists use the concept of wage replacement, which entails comparing a worker's expected future earnings, if a person was not disabled, with the amount of benefits which are received to offset lost income. In analyzing 1 small population of 270 disabled textile workers, social security payments accounted for and replaced 40 percent of lost future income, while workers' compensation awards made up only 7 percent of lost wages.

Disturbingly, 47 percent, or almost half, of lost future income was never replaced by any benefit program and absorbed by disabled workers and their families in the form of a lowered standard of living and quality of life. Do you feel that in light of these kinds of figures, the industry or the Federal Government should somehow take up that slack. It seems that justice is not being done in this case.

Mr. **Michaels**. Social security has been a lifesaver for virtually every textile worker who has contracted the disease of byssinosis. What generally happens is that if they are going to help them, they lay them off so that they get unemployment for the 6 months before they can even qualify for social security; so that replaces some of the income. I do not think it is fair. I think the industry should support these people rather than the public, and there are social security offset provisions where these people get workmen's compensation. They can only get 80 percent of their average monthly wage, computed as to the last year that they worked. So, when you add the social security and the workmens' compensation, you cannot go over 80 percent, or the social security is reduced.

Mr. **Gore**. I asked you earlier about the black lung example. The key element of that which I was trying to get you to respond to is that a presumption of causation exists. Is that a realistic possibility in a case like this, where brown lung is concerned?

Mr. **Michaels**. I think Dr. Kunstling also can comment on it. To reduce litigation, yes.

Mr. **Gore**. The black lung statute creates a series of presumptions based on certain circumstances. That is not the case here, is it?

Mr. **Michaels**. No, not at all.

Mr. **Gore**. You see, society is going to be confronted with a lot of problems very similar to this one. The incidence is increasing. Our ability to recognize a cluster of cases like this is being enhanced. The effort to resolve these problems through the courts, utilizing the current mechanism, is creating enormous problems. The system is choking on these problems, and some other means may have to be found.

One option, clearly, is to set up a series of presumptions triggered by circumstances that the majority of people can agree are associated with causation. Do you think that should be done with respect to brown lung?

Mr. **Michaels**. I think it could be done, and I think it would help this litigation, if we are talking generally about occupational diseases. It would scare me a little bit because so little is known about it. I also handle chemical cases. We do not know how much exposure it takes in so many chemical cases. In brown lung we know a little bit more about it. Unfortunately, that is going to require a lot of give from the industry. On the other hand, it will also drop some people who are entitled to compensation; they would not get it.

Mr. **Gore**. Dr. Kunstling, should we expect science in the near future or the foreseeable near-term future to be able to tell us with any certainty that an individual's brown lung disease has definitely been caused by exposure to cotton dust?

Dr. **Kunstling**. I do not believe that there will be a conclusive diagnostic test that will allow us to say "Mr. Dowdy has byssinosis as opposed to chronic obstructive pulmonary disease not related to his occupation."

Mr. **Gore**. But that does not mean that he does not have it.

Dr. **Kunstling**. That is correct. I think the causation will probably always rely upon the epidemiologic evidence of associated risk.

Mr. **Gore**. That is one of the key points: To recognize that science has severe limitations, and it is unlikely that society will be able to turn to science in the foreseeable future for a precise and certain answer to the kinds of questions that our legal system is used to asking and having answered. The burden of that scientific uncertainty cannot be shifted to people like Mr. Dowdy and to people like the 10,000 Americans expected to die from asbestosis each year.

How society deals with that uncertainty and how it copes with this set of problems is what we are wrestling with in this hearing today. As I said at the outset, it is extremely difficult. But let me ask one more question, and then I will turn to my colleagues.

In January 1981, the North Carolina Industrial Commission released statistics covering the past 10 years of byssinosis compensation experience. Based on the extrapolations from epidemiologic data, less than 20 percent of the potentially disabled cotton millworkers in North Carolina with byssinosis have filed claims with the commission, leaving approximately 8,000 possible claimants outside the workmen's compensation system.

Why do you think so few of those claimants have applied? I will ask that both to you, Mr. Michaels, and to Dr. Kunstling.

Dr. KUNSTLING. I do not know how many potential claimants there are; I think I have seen a figure of 15,000 estimated cases in North Carolina. I think this figure probably derives from studies which have found that the risk of developing chronic obstructive lung disease is very high with cotton dust exposure. Now these studies may tend to overestimate the real risk. There may not be 15,000 cases in North Carolina that are at risk. Certainly there are many individuals who do have obstructive lung disease who are reluctant to apply for compensation. Many people in North Carolina and in other areas of the Southeast are hesitant to come forward and file for this type of claim. I think this tends to reflect the population in the Southeast.

Mr. GORE. I am not sure it is unique to the Southeast. I come from the Southeast myself, but I know that a recent report from the U.S. Department of Labor stated that nationwide less than 5 percent of the 3 million occupational disease victims in this country ever receive any workmen's compensation benefits at all. In many cases it is because these scientific problems are hurdles that they encounter and also the reluctance to go forward in an area where people have not filed claims in the past.

Dr. KUNSTLING. Many of these people, particularly in textile mills, are from very small towns. They are uneducated, and they have a great deal of anxiety about what they have to go through in the course of an application. For instance, the pulmonary function testing itself is something that frightens many of these people. There are a number of aspects of the workmen's compensation process about which they feel very apprehensive.

Mr. GORE; I would like to call on a member of the subcommittee, Mr. Wolpe.

Mr. WOLPE. Thank you very much, Mr. Chairman. I have just two questions, one of which is for Mr. Michaels.

Have you relied much on the OSHA cotton dust standards in building your cases, and do you think that OSHA standards should be considered when the liability of a company is at issue? I ask this question in light of the notice that has recently been filed of OSHA's intention to modify its standards.

Mr. MICHAELS. No, I have not used the standard to prove a case. I do not need to. First of all, you must understand that it has only been in effect since 1979, so we are just dealing with 2 or 3 years of exposure and we need 20 or 30 years of exposure.

Second, about its reliability, certainly I am in favor of it because it will tend to eliminate the problem. It works hardships on individual workers because OSHA also requires that once you recognize this person is a reactor, they send them to the doctor. That presents a problem because then the doctor might diagnose it and say he is a reactor and send him back to the mill. He either has to be taken out of exposure or given a nondusty job or they give him a respirator.

When they give a person a respirator in a mill, they are basically telling them goodbye. It is a terrible situation. It is a large helmet that basically does not work. It gives them headaches, and they become ostracized by the other workers. In most instances where I have represented clients who have had that situation, they are gone from the mill within a year's time because they have not been given a nondusty job; the respirator alternative is really nonexistent.

Mr. **Wolpe**. With respect to the question of the liability of a company, do you think that OSHA standards should be utilized?

Mr. **Michaels**. No. Once again, it might come into play when you have OSHA standards in effect for 10 or 20 years, and that person went to work in 1979 or 1975. Then they will bring in the dust level study and say, "We were in compliance with OSHA standards since they were in effect in 1979. It is now 1995, and he was only exposed for 20 years, but for 16 of them we were within OSHA requirements." Then I could see the argument maybe being made. Then it is going to be a medical question of whether the doctor thinks that person still could have contracted byssinosis.

That is the way it is going to come up. Naturally, in a few cases, we have had them raise the defense, "We are within the OSHA standards," but there has been too much exposure in the past to make that a signficant argument.

Mr. **Wolpe**. Is it feasible or desirable to attempt to apportion causation in byssinosis cases, as the North Carolina Court of Appeals did last year?

Mr. **Michaels**. It was actually our supreme court that came in with apportionment. I disagree with the way they went about it. I have no problem with apportioning perhaps disability, if 50 percent of the disability is heart-related and 50 percent of it is related to lungs. They might apportion it that way. They apportioned it in a way, though, that reduces the benefit to the claimants, in some instances, just ridiculously low, to as little as $5,000 and $10,000, lower than just the minimal back cases we have had and these people have severe pulmonary problems.

In apportioning cigarette smoking versus cotton dust, I am against it. As Dr. Kunstling said, they are additive. A doctor's testimony I took yesterday said that they are synergistic, meaning one cigarette smoke and one cotton dust does not equal two; it equals three. They just are mutually aggravating. To a reasonable degree of medical certainty, I do not believe that they can separate it out. the only reason some of our doctors are attempting it, by my feeling, is because the court has told them to try.

Mr. **Wolpe**. Dr. Kunstling, Would you have any reaction to that?

Dr. **Kunstling**. I think that it is very difficult to apportion causation if you are trying to sort out the effects of cotton dust versus cigarette smoking. They have similar effects. I think there are a few workers who perhaps have had a long exposure to cotton dust and have never smoked or smoked very little, in which case we can say that the cotton dust is obviously the problem. There are other workers who have a very long history of heavy cigarette smoking and perhaps a very minimal exposure to cotton dust, in which case we could perhaps place most of the blame on cigarette smoking. But most workers are in the situation of Mr. Dowdy, where they have a significant exposure to cotton dust and they have also been heavy smokers. There is really not a reliable way to sort out the effects of one versus the other.

When it comes to apportioning impairment due to lung disease versus other types of conditions, such as having only one leg or something like that, then I think we can do a much better job. Our assessment of pulmonary impairment does rest on objective parameters of lung function testing. We do use the American Medical Association guidelines to respiratory impairments to try to have a uniform means of describing pulmonary impairment.

Mr. **WOLPE**. Thank you very much.

Mr. **GORE**. Mr. Shamansky?

Mr. **SHAMANSKY**. No questions.

Mr. **GORE**. We are pleased to welcome Congressman Don Albosta, who is going to introduce our next panel.

Without objection, let me put into the record an article from the New York Times called "The Cotton Dust Storm Returns."

[Material to be supplied follows:]

[From the New York Times, Aug. 8, 1982]

THE COTTON DUST STORM RETURNS

THE TEXTILE UNION THOUGHT THE HEALTH ISSUE HAD BEEN SETTLED, BUT OSHA DECIDED TO REVIEW ITS STANDARDS

(By Doug McInnis)

RALEIGH, N.C.—For the Textile Workers Union, the issue is the right to breathe clean air. For the textile industry, the issue is a set of health standards that it considers far too strict and a price tag for meeting them that could reach $2.5 billion or more.

In question is just how to cope with a debilitating lung disease linked to prolonged exposure to cotton dust. The disease is called byssinosis, or brown lung, as it is known in the Southern textile belt where thousands of workers suffer from it.

Both sides have been feuding over the issue since the 1970's, when the Occupational Safety and Health Administration began the lengthy process of setting health standards for the nation's industries. A 5-to-3 Supreme Court decision in 1981 upholding the tougher cotton dust standards sought by the union was thought to have settled the matter.

In fact, the battle appears to be just beginning. In February, citing new health studies, the Reagan Administration said that it would review the current standards, which call for sharp reductions in factory cotton dust levels by 1984. Hearings are expected late this year or early in 1983.

"It's not just us and the companies," said Eric Frumin, health and safety director of the union. "The Government is taking an active role on the side of industry."

Mark D. Cowan, deputy administrator of the Occupational Safety and Health Administration, disagrees. "We're on the side of health and safety in the work place," he said. "There is no other goal."

The review could lead to substantial changes, and organized labor views the move as an Administration effort to water down the standards.

Moreover, labor charges that the cotton dust review is part of a larger Reagan Administration blueprint to dilute a host of factory health regulations already on the books. These include regulations dealing with lead exposure, hearing loss, and the right of workers to learn from their employers what dangerous substances they have been exposed to. All have been selected for review by OSHA, which denies labor's charges.

To date, OSHA has announced plans to review eight existing regulations, according to the A.F.L.-C.I.O., which closely monitors the situation.

Since the agency's founding in 1971, only about 17 industry standards have been set, or are being set, said George H. R. Taylor, the labor union's health and safety director. And he expects the Administration to subject other standards to review, including regulations designed to reduce worker exposure to asbestos.

"They're busily at work cutting the foundations out from under the standards," Mr. Taylor said.

"I disagree with that 100 percent," countered Mr. Cowan. He said his agency is conducting reviews to see if workers can be given the same protection at less cost, or in some cases to modify the standards if they turn out to be more strict than needed.

The opposing views on the cotton dust issue illustrate a basic philosophical difference among labor, industry and the Government on how to achieve safe working conditions.

The cotton dust review hits two long-time adversaries. On one side is the 400,000-member Amalgamated Clothing and Textile Workers Union. On the other is the American Textile Manufacturers Institute, which represents about 200 companies that control 80 percent of the textile industry's production capacity.

For all sides the stakes are high. For the textile union, the current cotton dust standards represent victory for a union that has met heavy opposition and frequent frustration in its goal of improving the lot of Southern textile workers.

For the textile industry, the review offers a chance to escape some of the multibillion-dollar expenditures it has said will be needed to fully comply.

"We have felt, along with most of the rest of the industry, that the standards, while not all bad, were unnecessarily demanding in terms of cotton dust levels," said Haven Newton, vice president of industrial relations for Fieldcrest Mills Inc., of Eden, N.C.

For workers, the review means possible changes in the means of combating one of the most debilitating industrial diseases. While the number of incidences of brown lung is still debated, earlier Federal estimates have suggested it is substantial. A 1979 Labor Department report estimated that 84,000 of the nearly 560,000 production workers in the cotton industry had brown lung in various stages.

The same report put the number of permanently disabled workers at 35,000 in textiles alone. Jobs that involve exposure to cotton in various industries include warehousing, yarn manufacturing, fabric manufacturing and processing of cotton waste.

The disease is thought to be caused by exposure to the leaf-like part of cotton, rather than the white cotton fibers. The dust that does the damage is thought to be microscopic, rather than the visible particles of dust easily seen in factories. Described as a progressively disabling disease, the symptoms include chest tightening, wheezing, shortness of breath and coughing.

While both industry and the union call publicly for a solution to the problem, they are expected to agree on little, if anything, as the review unfolds. "We're going to say it's day; they're going to say it's night," said the union's Mr. Frumin.

One clear-cut area of disagreement is how much to rely on costly machinery, which includes specialized production equipment and ventilation systems to cut worker exposure to cotton dust. The industry wants such expenditures minimized, with greater reliance on less costly procedures, such as switching workers prone to the disease to less dusty environments, or using respirators. The union counters that air-filtering machinery is more effective. And it says that respirators are burdensome and uncomfortable for workers, and do not work.

The textile institute argues for lower standards, citing new evidence it collected that it says shows the incidence of brown lung is less than earlier thought. "Byssinosis is very much under control," said John Titsch, the institute's safety and health director.

The institute's study, published earlier this year, was based on a survey of 142 textile companies with 400,000 employees, of whom about 150,000 worked in cotton textile jobs. The textile union disputes the institute's findings, and has some backing from the National Institute for Occupational Safety and Health, which has formally asked OSHA to disregard the industry's conclusions. The safety institute, a Federal agency, said the design of the survey "violates many basic premises" of the study of diseases."

The current debate is compounded by the fact that much of the machinery needed to meet cotton dust standards also improves the industry's productivity. Because of this, Mr. Frumin asserted, "the standard is not a hindrance to good management."

The union cites, for example, machinery for breaking open bales of cotton and feeding it into machines without the aid of workers. The machines not only remove workers from a dusty job, but they move cotton far more quickly than ever before.

But industry officials contend much of the clean-up money goes for air handling equipment, rather than productive new machinery, and some say the standards have had the secondary effect of shutting plants.

"They're putting more money into machinery as a result of the standards," said Edward F. Johnson, director of Johnson Redbook Services, a unit of Prescott, Ball & Turbin, in Cleveland, which follows the textile industry. But he added, "They've also closed plants that aren't economical to convert. It's had a shrinking effect on the industry."

The union takes issue with contentions that the standards have closed factories. "There have been plenty of plant closings in the last few years," said Mr. Frumin. "They haven't sought to blame it on OSHA."

Moreover the union maintains that the issue of whether companies can afford to comply is beside the point. "You don't relax the minimum wage based on inability to pay," said Scott Hoyman, head of the Amalgamated Textile Division. "And you don't allow people to breathe dirty air based on the inability to buy clean machinery."

The union contends that many employers have already gone a long way toward meeting stiff new dust standards of 200 micrograms per cubic foot of air by 1984. Among the leaders are Burlington Industries Inc., the nation's largest textile concern, and J. P. Stevens & Company, the second-largest. The industry acknowledges some progress in documents that the textile institute has filed in the cotton dust review. The documents show that an industry survey of 50 companies found they had spent about two-thirds of the $450 million they thought would be necessary to meet the standards.

But the institute added in the documents that it was unlikely these firms were typical of the industry as a whole. Companies that failed to respond to this survey probably have the bulk of their expenses still before them, the institute said.

Even without meeting the cotton dust limits, the current standards already require compliance with other regulations. These include requirements for medical surveillance, avoidance of unsafe conditions such as blowing dust in the air, and monitoring factory cotton dust levels.

The union and the industry differ on another key issue—the prevalence of brown lung. The industry contends that brown lung is not nearly so prevalent as once thought. It cites the result of a textile institute study, released earlier this year, that found that less than one-half of 1 percent of cotton dust workers surveyed suffered from brown lung. The industry said this data was collected under Federal brown lung monitoring requirements.

"The industry has argued all along that the problem wasn't as severe as claimed," said Mr. Titsch of the institute. "We really found that the data collected by the Government's rules verified that."

He said that the industry can prevent new cases by a combination of medical surveillance and switching prime candidates for the disease to jobs away from dusty environments.

The biggest problem, Mr. Titsch said, is retrofitting older operations. In some older plants, all the machinery would have to be replaced and the buildings themselves rebuilt, he said. "I would be sure you would see some doors close. In today's market conditions, they couldn't afford to do it."

For such companies, the review may ultimately mean an easing of regulations and a lower price tag for compliance.

The union, however, sees the matter differently, Mr. Hoyman, the textile division head, said the review is potentially a step backward.

"I think it's a very discouraging prospect for a textile worker who has waited a very long time for the existing standard to be put into place," he said.

Mr. **Gore**. Mr. Dowdy, there is a quotation in this article from the vice president of your former employer, Fieldcrest. The vice president, Mr. Haven Newton, vice president of industrial relations, says that the cotton dust standards now in the industry are "unnecessarily demanding," in terms of cotton dust levels. Do you have any reaction to that?

Mr. **Dowdy**. I have not been in the mill in 6½ years, so I do not know how the cotton dust is there now, but there was plenty of it there when I worked.

Mr. **Gore**. You never saw Mr. Newton in the cardroom, did you? Was the vice president of Fieldcrest ever in the cardroom?

Mr. **Dowdy**. No, I have never seen him.

Mr. GORE. Was any other vice presidents in the cardroom?

Mr. DOWDY. No, plant managers.

Mr. GORE. You have been listening to this here. Do you have anything else you would like to add before we move on?

Mr. DOWDY. Well, just what I have said. After 1972, they kept checking my breath, and they recommended me to go to the hospital once or twice a year and take a treatment for the breathing.

Mr. GORE: I wish you the best of luck. After 4 years, I do not know how much longer it will take. I wish you the best of luck in getting some compensation for your byssinosis.

We are going to have to move on. We could spend more time with this panel, but we have a busy day. I would like to thank you very much for your help here today.

We have a vote on the floor now, but when we return we will have the PBB panel, Mrs. Loretta Snider, Dr. Jeff Stross, and Mr. Gary Schenk. We will recess briefly for about 10 minutes and we will come back for our second panel.

[Recess taken.]

Mr. GORE. The subcommittee will come back to order.

I would like to welcome our witnesses, Mrs. Loretta Snider, of Cadillac, Mich.; and Dr. Jeff Stross, director of the patient care program at the University of Michigan; and Gary Schenk, with Ward, Schenk & Boncher, in Grand Rapids, Mich.

Our colleague, Congressman Albosta, was going to introduce some of our witnesses here, but we are going to invite him to join in asking questions for this panel as soon as he returns from the vote on the floor.

Without objection, the prepared statements of all our witnesses will be put into the record in full, and we will invite you to proceed with your statements, beginning with Mrs. Snider.

Welcome.

STATEMENT OF LORETTA DE JULIAN SNIDER, A MOTHER OF A PBB VICTIM, CADILLAC, MICH.

Mrs. SNIDER. Good morning, Mr. Chairman, members of the subcommittee, ladies and gentlemen. My name is Loretta De Julian Snider, and I am from Cadillac, Mich. I want to begin by thanking you for inviting me here.

My family consists of my husband, John Snider; Roxanne, 25; John Mansfield, 23; Mark Benedict, 21; and Rock Mansfield, 19. Prior to 1976, we were a very happy, healthy family. My son was very athletic, taking part in all kinds of sports, graded in skiing as one of the best in the State and one of the best in the Midwest.

In February of 1976, John asked me to drive his girlfriend home. He said, "Mother, we had a beer, and I can't make the trip." So I drove the girl the 2 miles, and when I got home I went to John's bedroom to talk with him about drinking, and he was completely out. His arms were floating in the air. I tried to awaken him, and when he did open his eyes they were glassy. I called the girl and asked her if they had anything besides a beer, and she said, "No, we opened it ourselves, and there was nothing in it, other than the beer."

Then in June of 1976, John was rushed again to Mercy Hospital. He had tremors, and he was unable to speak. They scheduled many tests. At this time, his color began to change, his eyes became glassy, and he was always nervous. Then in September of 1976, while dining with my parents, my husband, and a family priest, we received a call from our two children, Mark and Rock, and they said, "Mom, you'd better get home right away. John is acting really weird." So we rushed home—I think maybe three cars took off—and I found John in one of the bedrooms, his arms again floating in the air, his eyes closed, foam coming from his mouth.

I pulled him up in to my arms, and I couldn't get over it, he seemed to float right up into my arms. We wrapped him in a quilt and took him to the hospital. He was very confused, and I think it was not until the next day before he realized where he was. We thought that he had awakened once he was there, but it was not until the next day that he knew he was in the hospital.

They performed a lot of tests, EKG's and EEG's. They put a halter monitor on John at least two different times during that state, and he went home with a halter monitor. The doctors felt that John had superventricular arrhythmia of the heart, and they said they felt he probably needed a pacemaker. I should tell you that on the way to the hospital he vomited.

Becoming concerned about just having a pacemaker put into John, I decided that we should contact some doctors in Detroit and have him examined again. We took him to Harper-Grace Hospital. He had Dr. Sandra Leitner, a heart specialist, and the first day he was admitted she was not there. The doctors who were in intensive care or the coronary unit were very concerned because they said John had a "click." I said, "I don't know anything about a click. Nobody ever told me he had a click." I did not know what a click was, but they were concerned, and they called other doctors down to hear this click. The next day when Dr. Leitner saw him, there was no click. The only thing she could turn up was that John's heart was very, very slow, and then it would take off like crazy. When his heart took off and started to beat very fast, you could actually see his shirt pumping.

Dr. Leitner called in Dr. Andaya, a neurologist. She said, after testing, he did not have epilepsy. After 13 days he was released from Harper Hospital. They said, "John, you are healthy. You go home. You do anything you want to do." My sister and I said, "What about fishing?" He fishes a lot. He hunts in the swamps in our property. She said, "He can do everything. He's healthy, Mrs. Snider. Don't you understand? Take him home. Let him enjoy himself."

So we took him home. October 22, John and I went for lunch in downtown Cadillac. Two and a half hours later, John had another seizure. He was rushed by ambulance to Mercy Hospital, vomiting on the way. Again it was diagnosed as superventricular arrhythmia of the heart. They said he needs a pacemaker. I called Dr. Leitner in Detroit and asked if she would review the records again. She said, "Oh, I don't want to see the records. I want to see John." So I took John back to Harper Hospital.

Testing was done, and he was released. He was given Dilantin and Valium. Of course, John could not continue on the Valium too long. He was asleep half the time before they put him on the Valium; he did not need Valium. We returned to Cadillac, and John was still very ill. Our family physician, our very good friend who has been very kind to us throughout this whole episode, did a glucose tolerance. John was diagnosed as hypoglycemic.

I arranged to have John examined by an endocrinologist, Dr. Leech, at Beaumont Hospital. My mother one day was watching John eating a snack, and a snack for John would consist maybe of a milkshake, two glasses of milk, a pop, maybe a large hamburger. This was a snack; he ate huge amounts of food. She said, "Loretta, look at John. I'm concerned that he might have PBB poisoning." Well, I had no concern about PBB poisoning. I never considered PBB poisoning.

My husband contacted Senator John Toepp of Michigan, who is now deceased, who had Speaker of the House Bobby Crim contact us. We told him what was going on, these weird illnesses. One day we were told one thing, the next day we were told another thing. John's symptoms continued. He was tired. He was glassy eyed. He was nervous. His personality changed. He had aches, stomach aches, knee aches. I asked him if he would arrange for a PBB blood serum, and he did arrange for a PBB blood serum.

This was taken a couple of days before John went to Beaumont Hospital. He was admitted, and they ran a lot of tests. They did not find hypoglycemia. They did not find heart problems. They did find a little strange heart murmur, and he called in Dr. Jami Mounayer, a neurologist. I did ask them to take a PBB blood serum, and they did. Dr. Mounayer's diagnosis was epilepsy, and I said, "That's fine, but how did you come up with a diagnosis of epilepsy?" I was not ready to accept a diagnosis of epilepsy. He did not injure his head, he had not been in an accident, and as a child if he had a high fever he never had a convulsion. There has to be a reason for epilepsy.

After a while the PBB results returned to us. Dr. Leich's was 0.02 parts per million. The Department of Public Health was 0.111 parts per million. I called Dr. Salvati; in Big Rapids. He did many tests. None of the tests were normal. His diagnosis: PBB poisoning. In April of 1974, I called Dr. Tom Corbett of Ann Arbor. I gave him all John's medical history, told him we were going crazy. We had this beautiful boy, this athlete, who could do absolutely nothing.

I told him what the count was: 0.111 parts per million. He said, "Mrs. Snider, you are wrong. It's 0.111 parts per billion." I said, "No, 0.111 parts per million. I have the report right in front of me." He said, "My God. That's an enormous amount." He had me call Dr. Diamond in New York, at Mount Sinai Hospital. He considered Dr. Diamond one of the best neurologists, and he could arrange for John to be seen by Dr. Selikoff's environmental group.

When I told Dr. Diamond it was parts per million and not parts per billion, he was very concerned also. He asked if John could have a fat biopsy. He suggested Dr. Meester. I called Dr. Meester, and he said he would do it and send it to the State. I did not want it to go to the State of Michigan, because I was beginning to realize what I was caught in the middle of. So I went back to my doctor Richman, my family doctor, and I said, "Please, will you do this fat biopsy?" He said, "Of course, and why don't we split the sample."

We send one to WARF and one to the State of Michigan, and Dr. Meester is the one who did it. The fat biopsy was returned to us with a 1.81 parts per million in the fat.

We went to Mount Sinai in New York. We were there about 8 days. Johnny was seen by many doctors. I do not have the results of those tests. I have a lot of faith in Dr. Diamond, and he gave me a list of rules that John should follow, and we have been trying to live by those rules.

I have had communication with Dr. Diamond. I still do. If a doctor recommends some type of treatment, I will call Dr. Diamond again and OK this with him. When John has a seizure, they may say, "Oh, let's do a CAT scan." He says, "There isn't any reason. We know what's going on with this boy. We know it's not epilepsy. There is no reason for us to put rays in this boy's body. We will not do a CAT scan, Loretta." So I follow his rules.

But in September of 1977, I called Dr. Diamond. I was very upset about a "dog study" that had been done by the FDA and had never been released. The dogs were fed amounts—I do not know if they were large or small; I really know very little about PBB—but the dogs were fed amounts of PBB, and in isolated cases they suffered convulsions, blindness, and death. He asked me where I saw this report, and I told him it was in the Detroit Free Press. He said, "I hoped you would never see it, Loretta."

Since this time, John continues to be ill. Our doctors' visits are not as frequent as they used to be, because we have had problems. The insurance company has refused to pay some of our hospital bills. This was in 1977. In 1980 I did contact Representative Albosta, who had me contact the Department of Commerce, who had me contact our insurance department. When I talked to the insurance commissioner's office in Michigan, he said, "Who do you have your insurance with?" I said, "We have it with Aetna." He asked if this was a group plan, and I said, "Yes, it is a group plan." He said, "With what group?" I said, "My husband works with the State of Michigan." He said, "I don't believe this." After that, communication began, and these bills have been paid for.

But our family has really changed since 1976. The children are all suffering illnesses. When they first told me about these illnesses, I did not know what was going on. I was only concerned about the convulsions. I would say, "Take an aspirin. Lie down. You'll feel better." That was the way I felt about it. But things have not improved.

I thank you very much

[The prepared statement of Mrs. Snider follows:]

STATEMENT OF
LORETTA DE JULIAN SNIDER
BEFORE THE
SUBCOMMITTEE ON INVESTIGATION & OVERSIGHT,
COMMITTEE ON SCIENCE & TECHNOLOGY

Good Morning, Mr. Chairman, Members of the Subcommittee, ladies and gentlemen. My name is Loretta De Julian Snider and I'm from Cadillac, Michigan. I want to begin my thanking you for taking an interest in the concerns of the victims of the PBB tragedy, the worst chemical contamination in our history.

My family consists of my husband, John Snider, Sr. (Jack) and my four children; Roxane Rene', 25; John Mansfield, 23; Mark Benedict, 21; and Rock Mansfield, 19. We were a very happy and healthy family in 1975; we enjoyed all types of sports including: running, biking, water skiing, swimming and snowskiing. My husband and all of my children were competitive skiers. They were rated the best in the state, the best in the midwest and some rated nationally.

My son, the major subject of my testimony here today, was also involved in waterskiing, sailing, running, wrestling, biking, weightlifting, snowskiing, hunting and fishing. The sports my kids participated in-- they were among the best. Winning in both school and other sports outside of school was very important to them.

John was practicing the mile run and broadjumping. He planned to take part in these sports the coming school year. John also planned to go out for football. He and the coach planned for John to play backfield, that's how strong he was at that time. His senior year was to be filled with fun and sports.

In January, 1976, John complained of knee aches and stomach pains. In February, 1976, John came home with his girlfriend, didn't feel too well and asked me to take his girlfriend home. He said he had had a beer and wasn't able to drive her home. When I came home, I found John completely out, arms floating in air. When he came around he was confused.

On June 24, 1976, John was rushed to Mercy Hospital in Cadillac with tremors and was unable to speak. At the hospital he had a blood sugar test and an EEG. Sugar seemed a little bit low so they scheduled a glucose tolerance test, but he couldn't keep down the fluid. Later in June, John's color was very bad. His flesh was pure white with cheeks rosy red and his eyes were glassy. He became very hyper at this time. We noticed a big personality change. He also developed around this same time, skin rashes that lasted a day or two and much longer.

My parents, my husband, Jack, two priest friends from St. Anne's Church and I were having dinner at our restaurant, the Marina, when Mark and Rock Snider, my two younger sons, called to tell me John was acting very strange. Everybody rushed to my home where we found John on the floor of a bedroom. His arms were floating in the air, foam was coming from his mouth. He wasn't able to speak. I pulled him from the floor into my arms. He seemed so light. We wrapped him in a quilt and rushed him to Mercy Hospital. Vomiting all the way, John was very pale, quite lethargic and still disoriented while in the emergency room.

We admitted him to the hospital for a few days and while he was there, the doctors did an EEG, blood sugar workup and an EKG. They diagnosed this spell as Super-Ventricula-Arrhythmia and suggested that John needed a pacemaker!

John had many problems during this time. Speech and numbness were a problem. He became very tired, spent a lot of time sleeping, lost all energy and had many chest pains. He also developed sore muscles and joints and loose bowels. I noticed that after he would leave the bathroom the soft light-weight stool was still floating in the toilet after it was flushed. In fact it always took at least two or more flushings for it to completely disappear. He still has this problem today.

On September 25, 1976, John was admitted to Harper-Grace Hospital in Detroit. He was put in the intensive care unit where doctors noticed a click in his heart. They questioned me about it. I knew nothing about this. The next day, Dr. Sandra Leitner, the heart specialist said she couldn't find a click. She said his heart was abnormally slow and that all of a sudden, for no reason, it would start beating very fast. When John's heart which was beating very slow began to beat very fast, those of us in his room noticed that we could see the pounding of the heart right through his bedshirt. Dr. Leitner also found a heart murmur. She called in a neurologist, Dr. Leurds Andaya. Dr. Audaya said that John did not have epilepsy which had been suggested due to his seizures. After about 13 days John was released from the hospital. They said he was very health and that he could do anything he wanted to so. He was really okay.

My sister and I asked Dr. Leitner about his hunting in the swamps and fishing alone. She said let him go -- he's okay. When we returned to Cadillac, John was even more tired than he was since June, spent many more hours sleeping. Also while John was in the hospital Dr. Leitner had a five hour glucose tolerance performance. John revealed to me later that he threw the glucose down the toilet instead of drinking it. Leitner reported to me that the test was normal.

October 22, I took John to town for lunch. Then 2½ hours after eating, John, who was working at the Marina Restaurant, had another similar seizure and was rushed to Mercy Hospital by ambulance. He vomited on the way. At the hospital the emergency doctor said that John seemed even more lethargic and disoriented than the other times. In fact, he said John seemed more so after each seizure. John was later released with the doctors telling me again he needed a pacemaker. They put him on a Holten monitor at this time. I returned home with John and called Dr. Leitner and asked is she could again review John's records because of his latest seizure and she said, "Mrs. Snider, I don't want to see his records. I want to see John."

John was again taken to Harper-Grace Hospital. He was again given an EEG. This time it was under induced sleep and the test showed convulsive disorder suspect. On October 29, 1976, they put John on dilantin and 5mg valium. Although Dr. Leitner mentioned hypoglycemia again, she didn't run another glucose tolerance test. One thing we began to notice and Dr. Leitner refused to note, was John's left eye was as red as blood after the seizure and lasted four days. While Dr. Leitner prescribed dilatin and 5mg valium, she never told me of the side effects of the dilatin such as gum problems. And while looking through some of the reports that have become available to me in preparing this report on August 9, 1982, I find that Dr. Leitner was treating John's problems as family psychological problems. I found in this report that Dr. Leitner labeled members of our family and said that my sister and I, for example, continue to undermine John's emotional stability. Another interesting comment appears in the report under Impressions, dated October, 26, 1976: b. Transient and quite mild hypoglycemia. Never at any time was I told about the mild hypoglycemia.

On November 11, 1976, we returned to Cadillac. Because John was still having much difficulty, Dr. Richmond of Cadillac ordered another glucose tolerance test. Normal in this testing is 70-110. John's results were as follows:

Fasting 84
½ hour----166
1 hour----127
1½ hour---- 72
2 hour---- 57
2½ hour---- 36
3 hour---- 64
4 hour---- 84
5 hour---- 92

Diagnosis----Hypoglycemic

On November 12, 1976, John was put on a high protein diet and ate every two hours. Though his sugar problems seemed more under control, he still had nervousness and a much changed personality. He still had less energy and difficulty in balance. Color was still bad during this time.

During November or December, my mother, while watching John eat a snack before dinner said, "Loretta, I think John should be checked for PBB." She mentioned the large amount of food and milk consumed by John.

I talked with Dr. Andaya about this and she said "Oh no, PBB only causes stomach problems, not neurological problems." Around this same time, John went to see endrocrinologist, Dr. Leich at Beaumont Medical Center in Royal Oak, Michigan. On the way out of the office, I mentioned to one of Dr. Leich's assistants that my mother was concerned that John might have PBB poisoning. The assistant said to take John off of all milk. Plans were made to hospitalize John in January of 1977 at Beaumont Hospital.

On January 21, 1977, I called State Senator Jack Toepp who had Michigan House Speaker Bobby Crim call us about John's illness. I told him I was more and more concerned that John was a victim of PBB and asked if he would arrange a blood serum test. He arranged for one for the whole family along with a medical history. Later in January of 1977, John was admitted to William Beaumont Hospital in Royal Oak, Michigan. Many tests were run by Dr. Leich at the Beaumont Hospital.

Dr. Leich called in Dr. Jami Mounayer, a neurologist. Dr. Leich found no sugar problems but did find a weird heart murmur--nothing to be concerned about. John was released again from the hospital. The results of the PBB serum were:

Dr. Leich------------.02 ppm
Michigan Department of Public Health----------.111 ppm

I talked to Dr. Leich about the results. He said its nothing to be concerned about--just forget it. There's no such thing as PBB. I visited with Dr. Mounayer and he said it was epilepsy. I asked him about a healthy boy just coming down with epilepsy without any history of high fever, convulsions or an injury to the head to cause the epilepsy. I have been told that epilepsy is always caused by something.

I asked Dr. Mounayer about the PBB in John's blood. He told me it's better to get PBB out of my head. That it's better not to ask questions and just leave things as they are.

Still troubled by the PBB testing results, I contacted Dr. Salvati of Big Rapids, Michigan, in February or March of 1977, because he was doing some testing in the area of PBB. I heard of Dr. Salvati through a farmer who was attending the PBB trial in Cadillac. Dr. Salvati took a medical history and blood tests. He said he was sure John's problems were caused by PBB. The results of the tests run by Dr. Salvati were as follows:

test	Normal	John
(Alkaline Phosphatase)		
Phospholysidis	150-250	280
Triglycerides	36-165	171
Serum Electrolysis	3.6-5.2	8.8
Thyroxin	4.5-11.5	3.7
Protein Electrophoresus	3.2-5	5.2
White Blood Count	4.8-4.10	4.7
Liver Function LDH	100-225	233
Inorganic Phosphorus	2.5-4.5	4.9

Dr. Salvati said John was suffering from PBB poisoning.

In April of 1977, I did not know where to turn next. I remember reading of a Dr. Tom Corbett of Ann Arbor, Michigan, and telephoned him to described John's medical history and his .111 ppm blood serum level. He said, "Your wrong Mrs. Snider, it's .111 ppb." I said, "No .111 ppm, I've got the paper right in front of me." He said, "My God, that's an enormous amount. I want you to call Dr. Sidney Diamond of Mount Sinai Hospital in New York. He is one of the best in the country and he will make contact for John to be seen by Dr. Selikoff and his team of environmentalists."

I called Dr. Diamond who also thought I was talking about parts per billion instead of parts per million. Dr. Diamond, a neurologist at Mount Sinai Hospital, said that was a huge amount of PBB and that he would like John to have a fat biopsy. He suggested Dr. Meester of Grand Rapids, Michigan, to do the testing necessary. After talking with Dr. Meester and finding out that the sample would go to the state laboratory to be tested, I decided to have our family doctor, Dr. Richmond do the testing. Split samples were sent to W.A.R.F. Institute in Madison, Wisconsin, and the State of Michigan lab in the state capital, Lansing. Dr. Meester actually did the state sampling. The W.A.R.F. test result was 1.81 ppm.

After high school graduation in June of 1977, John was again hospitalized. This time at Mount Sinai in New York City. John was admitted by Dr. Diamond and seen by many other physicians, including doctors of environmental medicine.

Many tests were done, I have never received the results of this testing, but having complete faith in Dr. Diamond who told me I only know what is going on because I was so persistent, and that as soon as there is a cure or a way to release PBB from the system my family will be one of the first to know.

He gave me a list of strict rules for John to follow:

1. John should not work or play on a full stomach.
2. John should not go out in the sun.
3. John should not eat any Michigan dairy products for a year.
4. John should not be stung by any bees. He said that this is one of our main worries.
5. John should not drink, and if he does, not more than two ounces at any one time and it should be something like wine.
6. He should be in the care of an excellent internist.
7. John should be taken out of the hands of a neurologist. To this day, Dr. Diamond remains his only neurologist.

Dr. Diamond reported to me that the environmentalist calculated that John drank 1.7 gallons of milk per day. John also ate many hot dogs and a lot of cheese between meals as snacks.

While in New York, my other sons flew out to have fat samples taken from them as well at Mount Sinai. The doctors were taking the fat samples through a "suction" method at that time. But because of their many years of active sportsmanship, their bodies were too muscular and they couldn't get enough fat. Surgical samples were not possible due to the time constraints involved. It was requested we have them done when we returned to Michigan, and we did. In September of 1977, John attended Ferris State College in Big Rapids, Michigan. It was a terrible experience for John. He wasn't able to organize himself. I talked with Dr. Diamond about this and asked him if he thought John needed psychiatric care. He said emphatically, "No!" He said John could talk to a school counselor if he wished to, but that to have no psychiatric care. That isn't John's problem.

On September 28, 1977, I telephoned Dr. Diamond and asked him about the "Dog Study" done by the Food and Drug Administration. (A copy of the newspaper article is attached.) The dogs were evidently fed small amounts of PBB. The dogs suffered among other things, convulsions. I was upset because of John's levels of PBB and the similarity in symptoms such as convulsions. Dr. Diamond asked me where I saw the report. I told him there was a report that day in the Detroit Free Press. He told me he knew of the study and he had hoped that I would never know of it.

When John had another seizure while visiting a nursing home, medical people on duty saw the seizure, and rushed him to Mercy Hospital. A full report was given to the doctors stating that it was not an epileptic seizure. The doctors wanted to do a CAT Scan but after I put a call to Dr. Diamond, he advised me not to approve the CAT Scan. He said, "Loretta, we don't want to add all those rays to his body unnecessarily. The seizure was not epileptic--we know that already."

While all of this was going on, what I didn't realize is what was happening to the rest of my family. I was so concerned about John that when the other children mentioned aching joints, rashes, headaches or loose stools, that they were also ill. I'd say to them "take a couple of aspirins, honey, and rest so you'll feel better in a little while."

John, my husband was showing symptoms of irritability, severe chest pains, sweating, aching joints, loss of energy, colds and sore throats in addition to developing a problem swallowing. My son, Rock developed headaches, nosebleeds, colds, sorethroats, irritability, aching joints, stomach cramps, low blood sugar, loss of energy and skin problems. My son, Mark and daughter, Roxane, also had similar symptoms. My symptoms included allergies, sore throats, exzema, nosebleeds, arthritis, aching joints, numbness in legs and fingers, other skin problems as pre-cancer skin cells.

At this time, John continues to be ill. He still suffers skin rashes, convulsions, low blood sugar, tremors, is hyper- nervous, has loose bowels, numb fingers, speech difficulty, loss of energy, joint aches and is irritable. He also experiences severe headaches and is always hot. One point I would like to bring up is when John is in a stressful situation his condition becomes much worse. Speech and mobil actions become much more unstable. His eyes become glassy and his color becomes even more white with cheeks very rosy.

John no longer is the great active sports athlete he once was. His body is much older than his 23 years. His allergies are much worse and he suffers many sore throats and respiratory problems.

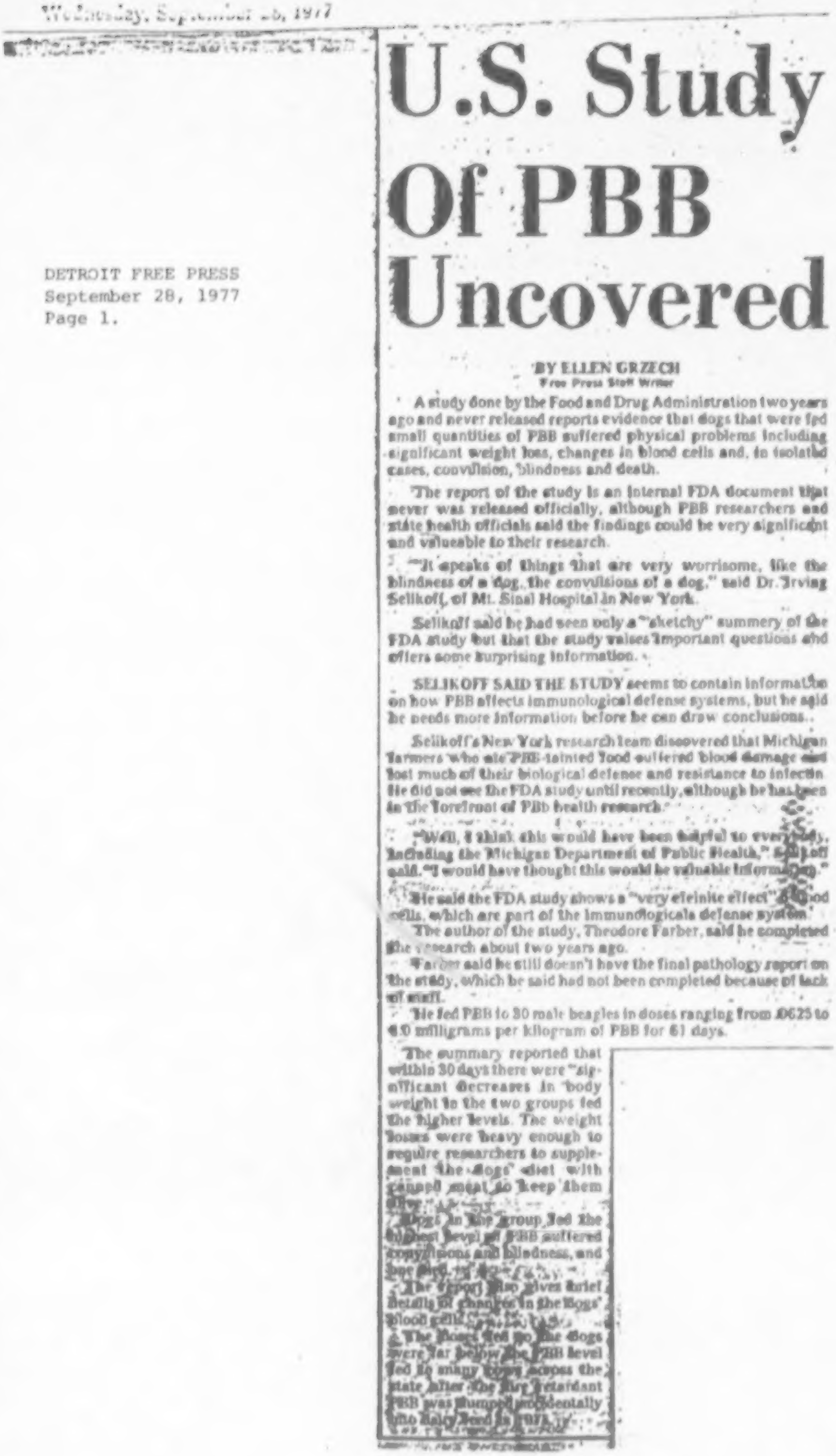
We don't visit doctors or hospitals as much as we used to because our insurance company in 1977 was not paying for most of our care because of the PBB implications. At one point it was necessary to contact Rep. Don Albosta to assist us in bringing our complaint to the Michigan Department of Commerce's Insurance Bureau. The bills have since been paid. Enclosed are my records on this.

John has been turned down by a Life Insurance Company because of there is a computer stating that he is a poor risk for life insurance. He's only 23 and a poor risk. Why? Because of PBB poisoning.

John purchased a house this year with the help of my parents and Farm Home Owners. He is not able to take out any mortgage insurance because of his health he can't afford it because the premiums are higher. He now works for the Cadillac State Bank as a teller and carrier. He had to lie on the health exam in order to qualify for this job.

So, Mr. Chairman, as you can see, the PBB incident is a tragedy. My family will never be the same and neither will thousands of other Michigan families who continue to suffer the effects of PBB contamination. I hope my testimony today has assisted the Subcommittee in understanding the seriousness of this situation. Thank you again for inviting me to participate. I will be happy at this time to answer any questions you might have.

DETROIT FREE PRESS
September 28, 1977
Page 1.



Wednesday, September 28, 1977

U.S. Study Of PBB Uncovered

BY ELLEN GRZECH
Free Press Staff Writer

A study done by the Food and Drug Administration two years ago and never released reports evidence that dogs that were fed small quantities of PBB suffered physical problems including significant weight loss, changes in blood cells and, in isolated cases, convulsion, blindness and death.

The report of the study is an internal FDA document that never was released officially, although PBB researchers and state health officials said the findings could be very significant and valueable to their research.

"It speaks of things that are very worrisome, like the blindness of a dog, the convulsions of a dog," said Dr. Irving Selikoff, of Mt. Sinai Hospital in New York.

Selikoff said he had seen only a "sketchy" summery of the FDA study but that the study raises important questions and offers some surprising information.

SELIKOFF SAID THE STUDY seems to contain information on how PBB affects immunological defense systems, but he said he needs more information before he can draw conclusions.

Selikoff's New York research team discovered that Michigan farmers who ate PBB-tainted food suffered blood damage and lost much of their biological defense and resistance to infection. He did not see the FDA study until recently, although he has been in the forefront of PBB health research.

"Well, I think this would have been helpful to everybody, including the Michigan Department of Public Health," Selikoff said. "I would have thought this would be valuable information."

He said the FDA study shows a "very definite effect" on blood cells, which are part of the immunological defense system.

The author of the study, Theodore Farber, said he completed the research about two years ago.

Farber said he still doesn't have the final pathology report on the study, which he said had not been completed because of lack of staff.

He fed PBB to 30 male beagles in doses ranging from .0625 to 6.0 milligrams per kilogram of PBB for 61 days.

The summary reported that within 30 days there were "significant decreases in body weight in the two groups fed the higher levels. The weight losses were heavy enough to require researchers to supplement the dogs' diet with canned meat to keep them alive.

Dogs in the group fed the highest level of PBB suffered convulsions and blindness, and one died.

The report also gives brief details of changes in the dogs' blood cells.

The doses fed to the dogs were far below the PBB level fed to many cows across the state after the fire retardant PBB was dumped accidentally into dairy feed in 1973.

MEMORANDUM

DEPARTMENT OF HEALTH, EDUCATION, AND WELFAR
PUBLIC HEALTH SERVICE
FOOD AND DRUG ADMINISTRATION

Don Report

TO : William Horwitz, Ph. D.
Deputy Associate Director for Sciences
Bureau of Foods (HFF-101)

DATE: August 22, 1977

[illegible] 05

PLAINTIFF'S
EXHIBIT
#625
WO 2-2-78

FROM : Theodore M. Farber, Ph.D.
Division of Toxicology (HFF-180)

SUBJECT: Summarization of the Results of a Study on the Effect of Polybrominated Biphenyls on the Immunologic System of the Beagle Dog

Polybrominated biphenyls (Firemaster BP-6) were administered orally to male beagle dogs for 61 days via gelatin capsule at the Bureau's laboratories in Beltsville. Thirty male dogs, 11-13 months of age were divided into five groups and were given 0, 0.0625, 0.25, 1.0 and 4.0 mg/kg of polybrominated biphenyls on a daily basis.

Significant decreases in body weight were seen within 30 days in the 1 mg/kg and 4 mg/kg groups. Weight losses were extensive enough to necessitate supplemental feeding of canned meat to all dogs in the study in order to keep the 1 mg/kg and 4 mg/kg animals alive for the planned sixty day period. The decline in body weight was arrested and reversed in many instances, but in the main, the body weights did not return to pre-study levels for most animals in these two groups.

One dog in the 4 mg/kg group had convulsions on the 50th and 52nd day of the study and appeared to be blind thereafter. Another dog in the 4 mg/kg group was found dead on the 58th day of study. Gross autopsy of this dog revealed some hemorrhage in the stomach, jejunum, ileum and colon.

Data from a large battery of clinical chemistries were unremarkable as were the findings in regards to immunoglobulin G titers, protein electrophoresis, sheep red blood cell hemoagglutin titer (humoral immunity) and tuberculin sensitivity (cell-mediated immunity).

Blood smears taken at the 30th and 61st day of the study revealed juvenille forms of lymphocytes along with what appeared to be dead or dying lymphocytes in some dogs at all levels of polybrominated biphenyl administration but was particularly evident at the 0.25 mg/kg and 1 mg/kg levels.

Histopathologic analysis of the study emphasized the examination of lymphocytic and myeloid tissues and positive findings were seen at the 1 mg/kg and 4 mg/kg levels. A marked difference was found in the bone marrow between the control and high (4 mg/kg) dose level groups. In the high dose level group the hematopoiesis was markedly reduced, especially in erythropoiesis. In this group there was also a marked increase in large reticuloendothelial cells with foamy cytoplasm. Three out of six animal at dose level of 1 mg/kg showed similar changes but in much less degree.

The lymph nodes at dose level of 4 mg/kg showed variable degree of depletion of lymphocytes particularly in the T-cell zones. The number of nodules reduced and the mitotic activity in the germinal centers decreased in variable degree. At a dose level of 1 mg/kg these changes were minimal.

There was marked extramedullary hematopoiesis within the red pulp of the spleen at dose level of 4 mg/kg. The extramedullary hematopoiesis was dominantly erythropoiesis and megakaryopoiesis. There was a moderate reduction of lymphocytes in the white pulp of the spleen. At dose level of 1 mg/kg the extramedullary hematopoiesis was mild to minimal. Anti-dog IgG fluorescin conjugated rabbit antibody was used to detect the distribution of plasma cells. For this test the right popliteal lymph node was used. There was a marked reduction in plasma cell number at dose level of 4 mg/kg in comparison to control group.

Mr. GORE. Thank you. We will hold our questions until the other members of the panel have completed our statements. We will have several questions for you.

Our second witness on this panel is Dr. Jeff Stross, director of the patient care program with the University of Michigan.

Welcome, Dr. Stross.

STATEMENT OF JEFF STROSS, M.D., DIRECTOR PATIENT CARE PROGRAM, UNIVERSITY OF MICHIGAN, ANN ARBOR, MICH.

Dr. STROSS. Ladies and gentlemen, thank you for the opportunity of being able to make this presentation.

Clinical epidemiology has been defined as the clinicostatistical study of disease populations. Whenever information is available from such studies, it should be used, together with all existing data gathered from a patient to plan for his or her future care. A logical progression of this to gather the relevant data, establish a working hypothesis, attempt to understand the natural history of a condition and the capacity of treatment to alter it, and then to plan, implement, and monitor treatment.

The initial step is to gather relevant data. This can include performing a history and physical examination, ordering laboratory studies, doing diagnostic tests, obtaining consultations, and obtaining all previous medical records.

The next step is to establish a working diagnosis, and this can range from a person being very healthy with no specific risk factors; to someone being very healthy with a specific risk factor, such as they smoke cigarettes; or to the fact that they may be sick with a very specific illness. To arrive at a diagnosis, we usually try to deal with three different types of clinical data. It may be a single diagnostic test, such as a biopsy which shows the presence of PBB; it may be a quantitative deviation from a laboratory test, such as an elevated blood sugar, which may suggest diabetes; or it may be from a cluster of observations, which may be signs, symptoms, and laboratory abnormalities which suggest a particular diagnosis.

The next step is understanding the natural history of a disease, which is often the most difficult to accomplish. This information is usually derived from longitudinal studies. In order to learn the natural history of a condition, a group of patients representative of the population affected by the condition must be followed over time. Ideally, the study should be conducted prospectively; however, most studies are carried out retrospectively.

In the case of PBB, all clinical studies have been retrospective in that they were planned and carried out from 1 to 6 years after the contamination occurred. Another major problem is that the control groups, people not exposed to PBB, were often not studied at the same time to determine if the identified abnormalities were found in that population in addition. This is key if abnormalities are going to be attributed to the adverse effect of a particular substance. Another problem is that the health status of the exposed population was not fully defined prior to the time that PBB entered the environment. Therefore, when the clinical studies were undertaken years later, there were no baseline data available for comparison.

These problems have made accurate delineation of the possible adverse health effects of exposure to PBB difficult to determine. Unfortunately, these problems are of a type that cannot be easily remedied, and it is going to take many years of followup to determine if PBB really does cause any significant adverse effects.

In the studies done to date, a characteristic symptom complex, occurring in a specific timeframe, has been identified in those individuals who have participated. They break down into several categories. The first category are general complaints: Weakness and fatigue, with lack of energy. The second group are abdominal complaints: Abdominal pain and irregular bowel habits. The third group are musculoskeletal complaints: Muscle aches and joint aches. The fourth group are related to infections: These may be skin rashes, frequent upper respiratory infections, or other types of infections. Then the last group have been the neural/behavioral types of abnormalities: These people have complained of being irritable, having a poor memory, difficulty concentrating, depression, crying spells, increasing sleep requirements, numbness, tingling of their extremities, impotence, and things of that sort.

I have reviewed the medical records that were provided in the case of John Snider, and they serve to point out many of these problems. No records of medical care prior to 1976 were provided, so I have no knowledge of his health status prior to that time. No records of his health status after 1977 were provided, so I have no knowledge of his health status after that time. Only inpatient records are provided, yet outpatient records are often the most useful, because most of the care that he probably was provided in the first 17 years of his life were obtained in an outpatient setting. Then the records are inconsistent, in that the different histories that are recorded—and he had had at least five hospitalizations—all record vastly different things

They do provide some interesting things, though, and I would like to go over those very quickly. His symptoms, according to most of the histories and physicals recorded, began in early 1976, significantly, about 1½ to 2 years after most patients develop their symptoms and his symptoms are actually different than those reported by most patients. Although he was described as tired, and he had some joint complaints, and he had some skin rash and abdominal pain, the written description of his complaints is different from those we have seen in many hundreds of people.

Significant psychological problems are identified in 1976 that suggest a long-standing problem. His school record was 3½ to 4 years behind what would have been predicted, and it would not have been predicted that it would occur in approximately 6 months of illness. Then the diagnosed problem of a seizure disorder is relatively common in that age group and has not been noted to be increased in people exposed to PBB.

As is obvious, what is documented in the medical record and what Mrs. Snider has just related to us are significantly different, and the resolution of these differences is key for her to bring increased clarity to the matter. It is very evident that John Snider's life was dramatically changed in 1976. I cannot say that PBB was responsible for this change, but I suggest that the nature of his complaints and the time sequence in which they occurred is different from that which we have seen in the other patients we examined with known exposure to PBB. Thank you.

[The prepared statement of Dr. Stross follows:]

PREPARED STATEMENT OF JEOFFREY K. STROSS, M.D.

Clinical epidemiology has been defined as "the clinicostatistical study of diseased populations. The intellectual activities of this territory include the following: the occurrence rates and geographic distribution of disease; the patterns of natural and post-therapeutic events that constitute varying clinical courses in the diverse spectrum of a disease; and the clinical appraisal of therapeutic agents."

Whenever information is available from clinical epidemiological studies of a patient's problem, this information should be used together with all existing data gathered from the patient to plan for his or her future care. The logical progression is to (a) gather all relevant data, (b) establish a working hypothesis, (c) understand the natural history of a condition and the capacity of treatment to alter it, and (d) plan, implement, and monitor treatment.

The initial step is to gather all relevant data.This includes performing a history and physical examination, ordering laboratory and diagnostic studies, as well as obtaining appropriate consultations and previous medical records.

The next step is to establish a working diagnosis and it may range from healthy with no significant risk factors, to healthy with risk factors X or Y, to sick with illness A or B. To arrive at a working diagnosis, three types of clincial data are utilized:

1. A single diagnositic test—a fat biopsy which shows the presence of PBB.
2. A quantitative deviation in a physiologic determination—an elevated blood sugar suggesting diabetes.
3. A cluster of observations which may include signs, symptoms, and laboratory abnormalities which suggest a particular diagnosis.

Understanding the natural history of a disease is often the most difficult to accomplish. This information is derived from longitudinal studies. In order to learn the natural history of a condition, a group of patients representative of the population affected by the condition must be followed over time. Ideally, the study should be conducted prospectively, meaning that the questions to be asked and data to be gathered are chosen before subjects are enrolled. Most studies are carried out retrospectively, the primary data to be collected were generated before the study was planned and the patients selected were those available for review at the time the study was carried out.

In the case of PBB, all clinical studies have been retrospective in that they were planned and carried out from one to six years after the contamination occurred. Another major problem is that control groups, people not exposed to PBB, were not studied at the same time to determine if any identified abnormalities were found in that population. This is key if abnormalities are going to be attributed to the adverse effect of a particular substance. The health status of the exposed population was not well defined prior to the time that PBB entered the environment. Therefore, when the clincial studies were undertaken years later, there were no baseline data available for comparison.

These problems have made accurate delineation of the possible adverse health effects of exposure to PBB difficult to determine. Unfortunately, these problems are of the type that cannot be easily remedied, and it will take many years of follow-up to determine if PBB does cause any significant adverse health effects.

Mr. GORE. Thank you very much.

Our final witness on this panel is Gary Schenk, with Ward, Schenk & Boncher in Grand Rapids. We have another vote on. We can get you started on your statement and then break.

Mr. SCHENK. I would be happy to wait.

Mr. GORE. I apologize to all of our witnesses for the inconvenience. We have a number of votes on the floor.

Mr. ALBOSTA. Mr. Chairman, I certainly want to apologize for not being here to introduce some of the people from Michigan who are testifying here on this panel this morning. We sometimes have to do a double shuffle around here, and this happened to be one of the times.

Mr. GORE. Or a triple shuffle.

Mr. ALBOSTA. Again, I apologize. We do have Dr. Bayless Walker with us this morning from the Michigan Department of Public Health. He is the director, and so we do have someone who is here listening to the testimony.

Mr. GORE. We appreciate it. The subcommittee is familiar with Dr. Walker. We are delighted to have you here.

Let me just say for the record that the subcommittee appreciates the hard work and cooperation that Congressman Albosta has demonstrated on this whole investigation. We appreciate it very much. Congressman Wolpe has been extremely interested in this as well.

I apologize to you again, but we are going to break for the vote and come back in approximately 10 minutes.

[Recess taken.]

Mr. GORE. We will come back to order.

We are pleased to have Gary Schenk, who is just about to begin testifying. Welcome, Mr. Schenk.

STATEMENT OF GARY SCHENK, ATTORNEY-AT-LAW, WARD, SCHENK & BONCHER, GRAND RAPIDS, MICH.

Mr. SCHENK. Thank you, Mr. Chairman and members of the subcommittee Congressman Albosta, my friend; Mrs. Snider, a friend and client; Dr. Stross, whom I know. It is a pleasure for me to be here, and I appreciate the invitation to testify before this subcommittee on a question that to me has tremendous significance: The compensation of victims of pollution-related diseases.

It turns out that this is a lot more difficult than I thought it would be when I agreed to accept your invitation, because as I sit here and reflect on the testimony of Mrs. Snider, it brings to mind a subject matter that is of great emotional concern to me. Mrs. Snider's story—I know it well because they were first clients and then friends—equals the stories of hundreds of families who at first to me were names, then clients, and then friends. And as a matter of fact, on a personal level, it equals a problem going on in my family today.

My name is Gary Schenk. I am an attorney from Grand Rapids. Nine years ago, I was a business lawyer. I knew about banking and contracts and corporations, and I was a pretty good one. Today, I am a plaintiffs' lawyer, and I am extremely concerned about the subject matter before this committee, the compensation of pollution-related victims; I am going to tell you something flat out: If I have one pitch to make, it is that until we take fault out of compensating pollution victims, until we take the fault concept out of the tort system, they are not going to be compensated. Plain and simple.

The figures in Michigan I am sure you have already heard. The death and destruction of hundreds of thousands of animals, tens of thousands of dairy animals, swine, sheep; millions of poultry; milk, butter buried in the ground; the economic disruption, psychological disruption and dislocation started, as I said, 9 years ago. Nevertheless, 8-plus years after the initial disclosure of the contamination, lawsuits continue to abound and those who have suffered economic and other losses remain uncompensated. My colleagues and I continue to devote hours, days, and weeks, adding up to years, to this problem.

In your invitation, I was requested to discuss why a particular victim could not obtain compensation through the tort system. Since the victim represented here, John Snider, is involved in litigation and I am an attorney in that litigation, it would not be appropriate for me to comment directly with respect to this case. Nevertheless, it seems to me that the problems you have chosen to examine are of general application and would apply to anyone similarly situated.

It occurred to me that this committee, in selecting the topic for discussion, has absolutely pinpointed the problem that exists in tort compensation. The committee's invitation indicates that "for both the legal and medical professions there exists significant information gaps which would be helpful to legally prove and critically diagnose that causation for a specific disease was by a particular substance. Indeed, in numerous illnesses of multiple etiologies, it may not be possible to pinpoint causation."

That statement, obviously, is remarkably accurate as a shorthand summary of the problems of compensation for toxic substance victims within the tort system. The problem in a word is the concept of "causation" which is the equivalent to "fault." Without a specific link between the substance and the causation of the disease problem, there can be no finding of fault.

Any review of that problem with respect to PBB contamination must be prefaced with the following thought. In 1974, thousands of animals on Michigan farms became ill and died or were destroyed. Their physical problems were of a great variety. Most of the farms involved had never before experienced similar problems. Animals died of starvation while lying in full feed bunkers. People, initially those on farms, experienced strange personal symptoms that they had never before experienced, all the while consuming their own milk, meat, eggs, poultry, swine, and sheep. A mysterious disease was at first creeping across and then roaring across the Michigan landscape.

Concurrent with this mysterious disease and the appalling range of acute symptoms was the exposure of our food chain to the chemical contaminant known as polybrominated biphenyl. Today, after 8 more years following the contamination, the debate still rages over the question of the link between the chemical and the problems. The tragedy of this disaster goes far beyond the negligent injection of this chemical into our food chain. The tragedy truly is that there is a debate over the issue of causation.

Anyone of goodwill and reasonable intelligence, who had taken half the time required to go to the farms that were involved and to examine the people exposed as well as their animals, would have known that something had happened. Something was going on in Michigan concurrent with PBB exposure. There have been no mysterious viral or bacterial diseases identified in the same time period, and the only major environmental change that has ever been pinpointed in that State is the fact that PBB was loose in our food chain at a time concurrent with these developments. The conclusion of causation is mandated by commonsense, and yet the debate goes on.

I go on in my prepared statement to find fault with the legal system, with the scientific system, and with the governmental system. Fault not in the sense that people did not try to resolve the problem. Initially, lawyers for insurance companies and lawyers for victims met, resolved problems, settled cases, and got victims compensated, initially. That is when we thought it was small problem. But as the scope of the problem became increasingly clear, what did lawyers do? If you were a defense lawyer, you dig in; you are going to run out of money, and you cannot keep giving it away. If you are a plaintiffs' lawyer, what do you do? You sue.

And where do we go then? Lawyers, judges, juries, laymen are asked to make judgments on critical scientific issues, in areas of chemistry, measurement, toxicology, pathology, veterinary, and human medicine, psychology. They were required to make judgments that properly belong in another arena, not in the legal system. The legal system simply is not adequate. I believe there were men and women of goodwill on both sides who tried, but the system simply is not adequate to handle a major environmental disaster that potentially today involves the 9 million citizens of the State of Michigan.

There are studies that demonstrate that 90 percent of our population is exposed to PBB. Some would say that is insignificant exposure, but we do not know. That is our problem. We are looking at a potential 9 million cases, and where are you going to put them in the legal system. We have 83 counties in Michigan. If I remember correctly, 77 of those counties have courts faced with PBB litigation, multiple litigations. Where do you get the lawyers who have the time to learn the science. There are not that many of us in Michigan. I sometimes think there are when I look around me, but there are not. We have no place to put them, we have nobody to handle the cases, not enough judges, not enough court time. We cannot handle the problem of a major environmental disaster.

We looked to government in Michigan in 1974 and 1975. I will find fault with the government, but not because it was done with malice or ill intent or evil will. We simply did not have the kind of trained personnel in Michigan to respond to a major environmental disaster. We did not have trained veterinary pathologists, veterinary toxicologists, psychiatrists, psychologists, human medicine, and animal medicine people who could be thrown into the breach to try to stop the problem. We did not even know how to measure PBB.

Dr. Stross talks about the wide range of symptoms. I have talked about the wide range of symptoms in people and animals. You know, to this day we do not know what all the components of that chemical are. PBB is a sophisticated mixture of chemicals; It is not one kind of chemical that you put in, where you know the mechanism, and it produces a specific result. In fact, the production of PBB resulted from lot to lot—that is, from one production lot to the next—in a wide variation in the very chemical.

We have examined 12 different batches and found 12 different makeups. How do we know what is producing what is producing which toxic result? We do not. And so what happens, the defense says, "The levels are insignificant, and we are not sure we are measuring the right thing." Symptom A could be caused by X, symptom B by Y. Sure there are causes for every one of the symptoms you can see. Only so many things can go wrong with the human body. But we do not even know what kind of chemical we are talking about when we are asked to assume the burden of proof, proving that this chemical caused the result in a wide variety of symptoms.

I blame the scientific community or find fault not because they have not tried, or there are men of ill will who are interested in seeing this problem put away. Researchers by nature are very cautious people. The level of scientific proof is far different from the level of legal causation. The scientists have to have their 95-percent level of confidence in repeatable results. Where do we take a human population, or an animal population for that matter, out on the farms and expose them to PBB and see what happens? We do not.

If you look at the kinds of people who are involved in Michigan—epidemiologists, pathologists, toxicologists, human and animal medical people, analytical chemists, organic chemists, inorganic chemists—and they each have one segment of this problem to examine, how are we ever going to get to the point where we have a 95-percent level of confidence that PBB is causing this syndrome, that syndrome, this problem, or that problem. We are not going to. We never are. That is the simple answer to it.

I see Dr. Stross on the other side of PBB cases. He has testified for the defense in at least one case that my office has been involved in. I do not believe that Dr. Stross is an evil man. I believe that Dr. Stross is a careful man. But scientists, although they utilize commonsense, are not going to rely on commonsense in the courtroom.

Somebody here this morning asked the prior lawyer, is the difference between the scientific burden of proof and the legal burden of proof a valid one. I submit to you that this is a valid distinction, but it does not work, not in the courtroom. In my experience, when people sit in the courtroom on a jury, or when they sit as a jurist who is going to decide the issues of fact, they are not satisfied with some mythical 51 percent burden in toxic contamination cases. I do not know why, but I will tell you what happens: The presumption in these cases, and I think in part it is due to the slick presentations that can be afforded by chemical companies and their attorneys. They have the bucks to put on their own studies.

A farmer who went out and bought a bag of feed to feed his animals, and then they got sick, and then he got sick from eating them, he may have lost $200,000 or $300,000, but he cannot go spend a million dollars on a study to prove anything "beyond any reasonable doubt." That is the standard, for some reason, that gets applied in toxic substance cases. You are not required to put the 51 percent on. You get a battle of the experts. My expert says that caused it, their expert says no, and it is the person who has the best studies on his side, who can finance the best studies, who wins the case.

Not one dollar of compensation has been paid to a PBB victim, either for his animals or his personal losses, in Michigan as a result of a jury verdict or a court verdict. Every case tried has gone against the victim, when commonsense mandates the cause of the problem. They simply cannot meet the burden of proof that has been placed upon them to rebut the presumption that a chemical that never should have; been in the food chain, that everybody recognizes is a dangerous chemical, a toxic chemical, has caused the problem.

We can find all this fault, but the fault is in the system. The fault is the legal system that was handed down to us from England that looks to the past for precedent. It cannot keep up with the future of development of chemicals and nuclear energy and all of the things that are happening in our society. The legislative response, in our State at least, has been to tighten the burden of proof against the injured party in product liability cases. We have legislation that does that. I do not understand how that happens, but it did.

The burden of proof with presumption in favor of a chemical that should not be there in the first place, the burden of proof on the farmer to go out and conduct his studies, to try to do what somebody else is going to do to beat down his expert is a burden of proof that practically cannot be met by the victim of a toxic substance. When you multiply one victim by an environmental disaster of the magnitude we have in Michigan, the burden for the lawyers, the burden for the victims, the burden for the courts, the burden for the scientific community and the Government is more than the system can bear.

In Michigan, in the first weeks following disclosure, I represented as a business a company that had a chicken farm. They raised eggs, millions of eggs. We had chickens dying all during that year for no explainable cause. They had tremors. They floated around. They bled from the noses and from the anus. We did not know why. We had them autopsied. There was nothing specific that could be pinpointed. The first day out of the box, when I got involved in this matter, I called one of the companies involved and talked to one of their managers. I said, "Could this problem be the result of PBB in the chicken feed?" They said, "It did not get in the chicken feed." I called the State and said, "Will you come? Will you send a vet up to test, because we suspect that is what happened." They said, "No, it did not get in the chicken feed." We finally found a place that could test our chickens. We had eggs with levels of 4,000 parts per million being consumed by people in our State. We had chickens that were sent to a processing company and went into one of your favorite soups that should have been tested for PBB and never was.

You talk about Government. We told the FDA about the problem. We said to the FDA, "You have to get involved. You have to help us." Well, the FDA had some involvement in Michigan. They came in and testified in the first trial I was involved in for the most part that PBB was not a problem. They told us, when we talked about moneys for funding studies, "Federal moneys would not be available, by and large, because it was a Michigan problem." PBB was a Michigan problem. I do not care what the next one is—it could be PCBs or you name it; a nuclear problem, you name it. Just a year ago, out West, it was PCB contamination of poultry flocks. You name it, it is going to happen again, and we do not have a response for it.

Let me close by summarizing my response, if I had one to give. If I were king for a day. I would take fault out of this system. I would take that burden of proof and shove it where it would never again see the light of day. I would try to apply some commonsense standards to victim compensation, a reasonable relationship in time to the problem, a reasonable similarity in the disease process.

I can only say reasonable in a case like PBB, where you have a mixture containing at least, if I recall correctly, 17 different chemicals, 10 different isomers of PBB, ground glass, arsenic, some levels of mercury. How do you know what the disease process is going to be. There should be some reasonable similarity.

We have the models for it. This country, in establishing its social security system many years ago, made a decision that those people who worked to build an industrial society at the end of their useful work life should not be thrown on the scrap heap and unable to take care of themselves. We built a system, which we hoped would be funded, which was to take care of those citizens, recognizing their contribution to society.

We are an automotive society. For years and years and years, the tort system complained of the courts being clogged by auto cases. We have no-fault insurance racing across the country, in virtually every State now. If there is an accident that is reasonably related to your automobile, it got out of control. Who bears the risk? The victim. It isn't one who has to go in and prove to a 95-percent level of confidence, practically, in the real world, that the substance caused this problem, without the resources, without the help, and without even a kind word from those who have the resources to truly pinpoint the problem.

Somehow, if we are going to bear that risk as a society, the society is going to have to find a way to accept those benefits and at the same time pay for the risk so that there is a way to compensate victims without waiting for 9 years in the courthouse. That is where we are today in Michigan. The courts are clogged 9 years later. There is yet to be a verdict in favor of a victim, and the only compensation has been when we did things like leak the FDA dog story. We had to come and get that in Washington ourselves and put it in the newspaper to try to scare the other side into paying us some money, thinking at that point of time that we might get a jury verdict. They were good people. They tried hard. They just could not afford what they had done.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Schenk follows:]

VICTIM COMPENSATION FROM POLLUTION RELATED DISEASES

Mr. Chairman, Members of the Subcommittee, Panel Members and Guests:

Thank you for your invitation to testify before this subcommittee on a question that to me has tremendous significance, that is, the compensation of victims of pollution-related diseases.

My name is Gary P. Schenk; I am an attorney from Grand Rapids, Michigan. The subject matter to which I was requested to address my remarks arises out of the PBB contamination episode in our State. I have been heavily involved in that matter since April of 1974, both in my capacity as an attorney, representing farmers and others who suffered losses as a result of the contamination of our food chain with polybrominated biphenyl and also involved as an interested citizen who was exposed to the chemical.

I am sure that you have already heard the figures involving the death and destruction of tens of thousands of dairy animals, of swine, sheep and millions of poultry and the figures of economic losses and disruptions of more than a hundred million dollars. Nevertheless, more than eight years after the initial disclosure of the contamination, lawsuits continue to abound and those who have suffered economic and other losses remain uncompensated. My colleagues and I continue to devote hours, days and weeks adding up to years to this problem.

In your invitation, I was requested to discuss why a particular victim could not obtain compensation through the tort system. Since the victim represented here is involved in litigation and I am an attorney in that litigation, it would not be appropriate for me to comment directly with respect to this case. Nevertheless, it seems to me that the problems you have chosen to examine are of general application and would apply to anyone similarly situated.

It occurred to me that this committee in selecting the topics for discussion has absolutely pinpointed the problem that exists in tort compensation. The committee's invitation indicates that "for both the legal and medical professions there exists significant information gaps which would be helpful to legally prove and critically diagnose that causation for a specific disease was by a particular substance. Indeed, in numerous illnesses of multiple ideologies, it may not be possible to pinpoint causation". That statement, obviously, is remarkably accurate as a shorthand summary of the problems of compensation for toxic substance victims within the tort system. The problem in a word is the concept of "causation" which is the equivalent to "fault". Without a specific link between the substance and the causation of the disease problem, there can be no finding of fault.

Any review of that problem with respect to the PBB contamination episode must be prefaced with the following thought. In 1974, thousands of animals on Michigan farms became ill and died or were destroyed. Their physical problems were of a great variety. Most of the farms involved had never before experienced similar problems.

Animals die of "starvation" while lying in full feed bunkers. People, initially those on farms, experienced strange personal symptoms that they had never before experienced all the while consuming their own milk, meat, eggs, poultry, swine and sheep. A "mysterious disease" was at first creeping across and then roaring across the Michigan landscape. Concurrent with this mysterious disease and the appalling range of acute symptoms was the exposure of our food chain to the chemical contaminant known as polybrominated biphenyl. Today, after eight and more years following the contamination the debate still rages over the question of the length between the chemical and the problems. The tragedy of this disaster goes far beyond the negligent injection of this chemical into our food chain. The tragedy truly is that there is a debate over the issue of causation. Anyone of good will and reasonable intelligence who had taken half the time to go to the farms that were involved and to examine the people who were exposed as well as their animals would have known something had happened. There have been no mysterious viral or bacterial diseases identified in this same time period and the only major environmental change that has ever been pinpointed is the fact that PBB was loose in our food chain at a time concurrent with these developments. The conclusion of causation is mandated by common sense. And yet the debate goes on.

Where then is the failing in our system that denies victims the compensation that common sense mandates? I suggest to you the following:

First, our legal system simply is not adequate to deal with problems of a major contamination episode. The Michigan situation is a classic example. Hundreds of millions of dollars of economic disruption, psychological and physical disruption occurred or began to occur within the space of a few short months beginning in 1973. Farmers made claims. Insurance carriers paid some claims but as the proportions of the disaster became apparent, the lawyers came in. Thereafter, major decisions involving questions of science and technology were left to be determined between lawyers. In my judgment, the lawyers for both sides of the question performed well and millions of dollars of claims were successfully negotiated and paid over a short time. But the disaster continued to grow and money began to run short and it was soon clear that for any more claims to be paid, the lawyers were unwilling to make the judgment required for causation and fault. It was then left to the courts and the laymen to access the same critical scientific and technological issues. The courts became clogged with PBB cases and the legal system began its inevitable grind. The point is simply that the legal system is not an adequate vehicle for the purpose of handling a disaster in our scientific world. The legal system is primarily geared to handle isolated, unsettleable disputes. Now it is asked to handle state-wide tragedies involving thousands of people. There simply is not the space, judicial time, and capacity to handle that burden.

Moreover, our legal system is one of tradition, history and essentially looks more to the past than to modern requirements. Concept of fault has been handed down to us from our English legal predecessors and bears little application to our high speed, modern, scientific, technological world.

Secondly, the scientific system is not geared to handle a major chemical disaster. Scientists by nature require time to research, eliminate interfering causes and meet their scientific level of proofs (the 95% level of probability) to testify "with certainty" that a cause exists.

Disciplines involved in the PBB contamination incident are eye-opening. There were problems of veterinary medicine, human and animal toxicology, human and animal pathology, organic and inorganic chemistry, appropriate methods of measurement, identification of chemical components, human medicine, psychiatric medicine and the list goes on and on. Virtually none of these disciplines have arrived at final conclusions with respect to any portion of the the problem from the standpoint of controlled, scientific studies.

Nevertheless, there remain experts on both sides who are willing to offer their opinion testimony without the benefit of such studies. The problem is that it reduces the issues to a battle of "experts". You bring in your expert and I will bring in mine. Your expert will say one thing and mine will say the opposite. I do not criticize those experts for they are men of good will, normally, and base their opinions on the data provided to them and do so in good faith.

So what is the problem, one would ask? Simply put, the problem is that opinion testimony is disputable on the issue of "causation" and thus, the debate rages on. Let me provide but one example. We have had testimony in a case involving research done by a southeastern Michigan hospital together with the University of Michigan. A joint study reported 70% hepatomegaly (liver enlargements). In examining the data, we found that the hospital had found 100% liver enlargements which is a common toxic response while the University of Michigan study found a "statistically insignificant" number of liver enlargements in the same PBB exposed population. The two research groups got together prior to issuing their report and "compromised" on a 70% figure. The debate rages on.

Thirdly, the government is not adequately structured to provide a response to large scale chemical contamination episodes. I have heard testimony from FDA officials who said that they did not become actively involved in regulating this problem because it was a "Michigan problem". The State of Michigan's resources were even more limited and as a consequence, the initial contamination continued to spread for months following the initial "mix-up". There simply were no governmental vehicles to either regulate the flow of contamination or to provide assistance for the victims. In point of fact, we found ourselves from the victim standpoint more often arguing with state agencies about the severity of the problem and felt them to more our adversaries than those seeking to assist. And the debate raged on.

In this modern, chemical age, the ability to regulate, scientifically explore and legally circumscribe problems of chemical contamination have simply been outstripped by the proliferation of chemicals through our science and technology. Simply put, the technology has advanced far beyond the system's capacity to handle the problems that can be created when a mistake is made. In our societal structure, there is no vehicle, legal, scientific or governmental to provide rapid, emergency response to a widespread chemical contamination episode like that of our PBB crisis in Michigan. The "fault" system virtually assures a lengthy fight. The company which has accidentally or negligently caused the major contamination episode may be talking about its survival. It defends on the basis that it is not our fault, "something else" must be causing the problem. The victims fight for their own economic and psychological and often personal survival and their redress remains through the courts where the burden is placed upon them to prove causation and fault. I ask you, does a farmer who went to buy a bag of feed and who wound up buying a bag of trouble have the resources and the capability to mount the extensive, controlled scientific study (of the type where Federal grants occur in the millions of dollars) in order to be able to prove his losses in court? Those losses may be one hundred or two hundred thousand dollars, a sum significant to the farmer and his economic survival, but in terms of the cost of such a study it is absolutely insignificant. Therefore, the answer to that question is no, the farmer simply cannot meet his legal and scientific burden of proof.

What about the person who feels bad? He has a wide variety of symptoms, he may not be dying but he is ill. His psychological and economic loss may be substantial in terms of his personal estate. To meet his burden of proving the cause of that loss, can that person mount a major epidemiological study costing millions of dollars to prove his case in court? The answer, obviously is no.

Yet, that is precisely the burden placed upon that farmer or that individual by our legal system; an absolutely impossible burden of proof. In my experience, in cases involving high technology and science, because of the lack of understanding the burden of proof generally works out to be greater than in the common kind of accident case. Jurors or jurists want to hear someone say to a certainty that A caused B. The resources to arrive at that certainty are not within the grasp of the victim and often, not even within the grasp of industry, science and government.

Where then does that leave us? In my view, and it is only my view, the answer lies in eliminating the concept "fault" in pollution and contamination cases. We have several models before us to provide guidance. Many, many years ago this country decided that it could not leave those individuals who toiled daily to make us a great industrial society on a scrap heap without any resources at the end of their working lives. Our society made a conscious decision that if individuals partook in building the society by their hard, daily, productive work, that the society which benefited would pay them Social Security at a time when they were no longer able to work.

Similarly, many years ago a question of fault, causation and similar types of sticky legal issues were eliminated for those workers in our society who were injured while building our society with the institution of our workers compensation system. Although some degree of "fault" remains in that system, the burden of proof is very light and the technical legal defenses formally available to the employer were eliminated. Society made a conscious decision that if those workers upon whom we rely for growth and productivity were injured, they would not be thrown on the scrap heap but their contribution would be recognized.

In both those systems, the theoretical background was that society, industry and the individuals would participate in the funding of that system.

More recently, we have had a proliferation of "no-fault" automobile insurance laws. This society made the conscious decision that if we were to be a highly mobile society we should no longer overburden our courts and stress the victims of that mobility by adhering to the concept of fault.

Well, today, we live for better or worse in a highly advanced petro-chemical environment. We are told daily in advertising that we could not live without chemicals and that they benefit our society greatly. Scientists talk of chemicals in terms of risk and benefit stating that if we are to have the benefits we must accept the risk. Unfortunately, the risk is that of having a burden to prove, causation and fault. I would propose to you that this society make a conscious decision that if we are to enjoy the benefits of a highly advanced chemical society with tremendous pollution potential as the downside risk, that that burden be shared by the entire society and the industry and not imposed upon those who are its victims. There must be a method for rapid compensation of pollution victims without resort to the concept of fault and to the legal arena where the victims are often left too long or forever without a practical remedy.

Gary P. Schenk

Mr. GORE. Thank you. It was very effective and very informative testimony.

Let me ask a couple of basic questions first, and then I will turn to my colleagues.

PBB's, Dr. Stross, what are their legitimate uses? Are there any left?

Dr. STROSS. PBB was originally used as a flame retardant in the plastics industry, and most things that contained plastic or had a plastic cover would have it in there. I think production ceased in 1974 or 1975, and they are using other things. I do not know of any legitimate uses for it today.

Mr. GORE. It occurred to me that we have talked all around, dealing with the generic issues which are illuminated by this episode. But I think it would be helpful to have on the record just a brief description of exactly what happened: In this incident, a lot of PBB, this material that was used as a flame retardant in plastics, was accidentally put into animal feed, and it was distributed to farmers throughout Michigan. It worked its way into the food chain and became pervasive in Michigan and in many other parts of the United States. Is that a fair, quick summary?

Dr. STROSS. I believe it is.

Mr. GORE. The prognosis for people who have been poisoned by PBB or have excessive levels of PBB, scientists and doctors just do not know; is that right?

Dr. STROSS. I think that is correct. Approximately 90 percent of the people in the State of Michigan have PBB in their body. What effect it does have upon the functioning of many different organ systems is not known for sure, and it is only going to be over prolonged studies that will take place over the next 20 years that we will be able to document whether or not it really has any significant effects.

Mr. GORE. The animal tests show it is carcinogenic; is that right?

Dr. STROSS. That is correct.

Mr. **Gore**. We will have a scientific panel next who will be discussing the generic issues, principally, but within this context along with other things.

Does the body void itself of PBB?

Dr. **Stross**. Over 90 percent of what is in the body will not leave, based upon the studies that have been done to date. And the initial research that has been done, in trying to develop ways to rid the body of the PBB burden, have not been successful. It is anticipated, as of right now, that we do not know how to get rid of it. It is excreted at a very low amount, and most will never leave the body.

Mr. **Schenk**. Mr. Gore, if I could respond to that as well, there are studies which demonstrate that PBB also react biologically in the body and do such things as bind with DNA molecules, forever altering them. I would think that in the case of growing children, that is an extremely dangerous situation. The thing to remember about PBB is that they are PCB with bromine hung on them, because the civilized world is outlawing PCB. So a substitute, a more reactive substitute, came out. They are persistent, extremely dirty chemicals that stay with you a long time to do their dirty work.

Mrs. Snider described John Snider's symptoms. We saw those same symptoms in animals, by the hundreds and thousands on farms. We have seen in people different phases of the disease, if there is a disease, acute and chronic but characterized by neurological disorders, including eyes, muscles. They feel nervous. They have this floating sensation, skin disorders, joint and muscle aches, personality changes, weakness and fatigue in the limbs, stomach pains, reporting infections, skin conditions, and very recently, in some of our younger clients, cancer.

I cannot tell you that there is a cancer epidemic going on, but I can tell you that I represent people exposed to PBB who have cancer.

Mr. **Gore**. Dr. Stross, how do you explain the fact that you see symptoms identical to the ones that people are experiencing in animals that have consumed PBB?

Dr. **Stross**. We have 9 million people. The entire State of Michigan has been exposed. There is a death rate from cancer in the State of Michigan that is below that of the national average, and many of the people who have been exposed to PBB are going to get cancer. Whether or not PBB caused cancer in these individuals is the question.

Mr. **Gore**. That is one of the questions.

Dr. **Stross**. We have studied many of these people. They have many of these complaints. When we tried to determine whether or not there are any objective findings, we cannot find objective findings. If someone tells you that something hurts, and they tell you that their joints do not work and that they are red and they are swollen and they are stiff, and you look at them and they are not red and they are not swollen and they have a full range of motion, and you do a variety of tests and you cannot identify any abnormalities, you have a problem.

One of the other problems is that many of the people that Mr. Schenk has been talking about have really gone through an interesting problem over the past 9 years. Many of them have lost their farms. Many of them have gone through a very traumatic time.

There are numerous studies in the medical literature as to what happens to individuals after they go through a very traumatic episode like this. The problems of depression are very common. The psychological complaints can cause physical complaints, and they are the exact same ones that are reported in all of these individuals.

Mr. GORE. Are the conclusions that you just stated general conclusions in the scientific community, or is there substantial disagreement with what you just said?

Dr. STROSS. There are very few studies that have been done, large-scale studies. The biggest large-scale study will be reported on by Dr. Selikoff who has done them. But in the Michigan Department of Public Health studies that have been done, they did not find any significant problems.

Mr. GORE. You seem to be implying that this is all mass hysteria.

Dr. STROSS. No, I am not saying that at all, not at all. What I am saying is——

Mr. GORE. You are saying we cannot rule out the possibility?

Dr. STROSS. I am saying that people have subjective complaints, but when we study the subjective complaints, what they tell you, and we look for objective findings that would correspond with that, we do not find them. They tell us all these things are wrong, and yet all the studies that we do fail to document any objective findings. The major areas where we have been able to document some objective findings relate to the psychological testing and to some of the neurologic testing. The question is whether the neurologic abnormalities could be related to psychologic abnormalities or vice versa. But I am saying there has not been a significant amount of objective findings.

There are studies done by Dr. Selikoff which show abnormalities of the immune system: There are other studies which show no abnormalities of the immune system. So I am saying, we do not know at the present time.

Mr. GORE. Do you think the chickens and cows and horses may have gotten their symptoms because they are worried about PBB's?

Dr. STROSS. I have no question that all of the problems that the animals had were related to their exposure to PBB.

Mr. GORE. Mr. Schenk?

Mr. SCHENK. There is only one point about the objective findings. Again, I maintain that men of goodwill—and Dr. Jeffrey Stross is a gentleman of goodwill, and I have no doubt about that—can make conclusions from reading data that differ, even though they are reading the same data. A classic example of that is referred to in my statement. I had a figure of 70 percent in a certain study; it was actually 75 percent. Forty-six people were studied by a hospital in southeastern Michigan—excuse me. There were 43 total: 23 to a hospital in southeastern Michigan, 23 at a hospital in Ann Arbor, out of a PBB-exposed group.

The hospital in southeastern Michigan determined that they were 100 percent hepatomegalys, liver enlargements. The other hospital concluded that there was something, if I recall, in the neighborhood of 30 or 33 percent. So you had 100 percent and 33 percent. They wrote a joint report, and they negotiated the report to come to a compromise figure of 70 percent. Well 23 of those people in one hospital were 100 percent. So I do not know how you negotiate a 70-percent figure.

I talked with FDA people who performed studies, and they testified in our trial in Cadillac. They came up with a figure, and I asked one of the witnesses, a scientist. I said, "How did you arrive at that figure? It does not flow from your data." He said, "We negotiated that figure." I do not know how objective that is in terms of findings and conclusions. I just think people can read data and come to different conclusions on it, men of equal goodwill.

Mr. GORE. I hear what you are saying, and I think it is a valuable addition to our record.

We are asking science to answer questions that it cannot answer. Is that not the problem?

Dr. STROSS. Yes.

Mr. GORE. And our society, like all other industrialized countries, is experiencing a chemical revolution which began after World War II, unprecedented in the history of mankind. We are only now beginning to realize how pervasively these chemicals can spread through the environment, and we are only beginning to understand how serious the effects of these chemicals can be on people. As we recognize these problems, we have placed, quite correctly, the top priority on preventing more such exposures and on quickly remedying those problems that are susceptible to remedy.

But far too little attention has been paid to the plight of victims. As victims seek justice in the legal system, they find that science lets them down and effectively shifts on to their shoulders burdens that they cannot bear. The result is not justice but injustice. Thousands and thousands of people, in incidents like this PBB episode, have been unable to get simple justice.

Because it is fair to predict that there will be more such episodes in the future, it is appropriate for the Congress to try to determine how we can improve our country's system for establishing justice for victims of environmental poisoning of the kind that your son experienced, Mrs. Snider. That is what these hearings are all about. It is a complicated task, but we appreciate your help in it.

I would like now to recognize Mr. Wolpe.

Mr. WOLPE. Thank you very much, Mr. Chairman.

I would like to pursue the line of questioning that you were pursuing with Dr. Stross. It is one thing to assert that in specific individual instances it may be difficult to establish that one's symptoms are directly attributable to contamination from PBB or any other chemical. But are you going beyond that to assert that there is not a single instance yet documented in Michigan in which the medical symptoms of a family or individual, particularly in the farm communities that were most directly impacted, are attributable to PBB contamination?

Dr. STROSS. No, I will not say that.

Mr. WOLPE. Are there then some instances in which you believe there is substantial evidence of causality that one could come to that conclusion?

Dr. STROSS. I think at the present time, the best thing I could say is that there are people who developed a very characteristic symptom complex and a marked deterioration in their health status at a time when their known exposure to PBB occurred. An assumption could be made that this could be related to their PBB exposure. I cannot say that PBB, yes, caused this or that PBB, no, did not cause it.

Mr. WOLPE. You are saying that in terms of the applicability of scientific controls, it is difficult to establish that. But if you are operating on the basis of a reasonable man, as distinct from a scientist who is in a position to impose the necessary required controls, would it not be a reasonable judgment that indeed we do know some very specific instances in which PBB contamination was responsible for medical symptoms that have been observed in particular families or individuals?

Dr. STROSS. I think there are some individuals in which that definitely would be true, yes.

Mr. WOLPE. I think it is important just to confirm the basic statement that was made by the chairman a moment ago. When you consider that in the State of Michigan there is yet to be a single judgment rendered in favor of one of the victims, or plaintiffs in this instance, in the clear knowledge that there have indeed been individuals and families so affected, there is a problem with respect to the justice of the system as it is operating.

Dr. STROSS. If I am not mistaken, we are talking about two cases that have come to court. If Mr. Schenk knows of any others, I would be glad to hear about them. We are only talking about two cases.

Mr. SCHENK. Actually, we are talking about four cases that have been tried. There have been two human and two animal cases that have been tried. You have been involved in the two human cases.

Dr. STROSS. He specifically said humans.

Mr. SCHENK. There have been four tried.

Mr. WOLPE. Why have not other cases come into the courts.

Mr. SCHENK. A very practical answer to that is, from a lawyer's standpoint, recognizing the problems of proof and hoping against hope that somewhere there is going to be a breakthrough in terms of causation, what we generally try to end up doing is to build a case a peg at a time. Other lawyers sit back and wait to see what happens to you when you go. We have settled negotiated settlements in a number of cases that have been taken right up to trial that were ready and prepared to go to trial, but you cannot ask one victim to be the guinea pig for all the rest.

Mr. WOLPE. How many settlements have been reached between complaining individuals or families and the industries involved?

Mr. SCHENK. On the animal side of the problem, there have been settlements in the range of $108 million.

Mr. WOLPE. Do you know the number of instances?

Mr. SCHENK. That involved over some 900 claims as I recall. In the human cases, I cannot tell you how many have been settled. There have not been very many settled.

Mr. WOLPE. Dr. Stross, the thrust of your testimony is that medically—at least until this very last exchange we just had—it is generally impossible to attribute any particular health effects to PBB contamination. We just do not know enough yet. Not enough time has elapsed. My recollection—and Dr. Selikoff will be before the subcommittee in just a moment—is that the Mount Sinai studies did at least assert by way of conclusion that indeed there were health effects that did appear to be directly related to PBB contamination of various levels.

Is that an accurate recollection on my part; and if so, are you simply disputing that conclusion, or do you agree with the general thrust of the Mount Sinai study?

Dr. STROSS. Of the Mount Sinai studies that I have seen, there was only one study that suggested that the level of PBB that you had in your body was related to the development of some neurologic abnormalities. I think most of his studies failed to show a good relationship between the level of PBB and the presence or absence of symptoms. Our studies and those of the Michigan Department of Public Health did not show a relationship between levels and amount.

Mr. WOLPE. What about the one study that did in the Mount Sinai case? Are you saying that you simply quarrel with the findings or with the interpretation?

Dr. STROSS. No, I will not quarrel with the findings or the interpretation. It is one study, and if it cannot be reproduced by others, I would question whether or not it is a valid study. I think those things will have to occur over time.

The other problem we have in interpreting this is that at the same time that these people have PBB, they have PCB in their bodies, and Dr. Selikoff's studies have shown approximately 10 times the amount of PCB's than PBB's. They have other things, DDT and a variety of other chemicals in their bodies also. So I think it is fraught with a little danger to say that the damage is due to one thing when there are many other things that are also there, in much higher quantities. The toxicology of these are also well known, and probably a great deal more well know than that of PBB.

I think it is too early to make any definitive statements, and time will tell. We are hopeful that we will know.

Mr. WOLPE. Let me ask you one more question. You indicated in your testimony that because of the retrospective nature of the effort to deal with PBB, it has been very difficult to establish causality with the precision that one would like. Have we learned anything from the PBB situation in Michigan, in terms of the way in which industry, the State, health authorities, and all the rest responded to it? Are there any specific lessons that have emerged that can be applied in similar such contamination cases, and is the machinery in place, either in Michigan or nationally at this point, to allow for a different kind of response?

Dr. STROSS. I am not sure that the machinery is in place in Michigan. I think the major problem or one of the major problems that was pointed out is that the number of people who have the qualifications, ability, and desire to carry out the types of projects that need to be done are very limited. The number of organizations similar to Dr. Selikoff's in New York are extraordinarily few. Fortunately, those people are available to do those sorts of things. Do we have that available in Michigan now? No, probably not. If another contamination came along, we would not have a group that could mobilize tomorrow, be set up to go into the field and do large scale numbers of evaluations of the type that needed to be done.

I think the awareness of the problem and the need to do something is probably the most important thing that we have learned, and I think a great deal has been learned in that respect. If something were to happen in the future, I think the awareness of the public, of Government, definitely the medical profession, is much higher than it was previously. I think we are willing to listen to people and act probably a little sooner when we start hearing all these complaints and to try and find out what has caused them.

Mr. WOLPE. Mr. Schenk, would you add anything to that?

Mr. SCHENK. I would certainly agree with Dr. Stross that in Michigan the machinery is not in place. I do not think it is in place anywhere. You know, I have been remisss in talking about the fault of all of these communities. One group that did respond extraordinarily well, and I know all the people in Michigan were very grateful, the ones I am involved with and many others I have heard related, is that the Mount Sinai group came in and at least took an active interest and a part in trying to resolve our problems.

If something else is going on, and they are involved, how can some other State expect to depend on one small medical community all the time? We do not have the capacity to handle the problem anywhere in the country, a problem that will happen again.

Mr. WOLPE. I thank you.

Mrs. Snider, would you care to comment? Is there anything you would like to add to that?

Mrs. SNIDER. The only thing I would like to add is that we are not a farm family. We are consumers. The Sniders live in Cadillac, Mich. We have never bought from a farm. I have never received any foods from a farm. We are strictly a consumer.

When John was at Mount Sinai, they figured he drank 1.7 gallons of milk a day, and I would believe that to be true.

Mr. WOLPE. Mr. Chairman, if I may in response to some of the testimony, let me say that like Congressman Albosta I was serving in the State legislature at the time of the PBB disaster. I just recall so distinctly the enormous frustration at the absence of any kind of solid information or understanding. Even more to the point was the enormous resistance by all of the agencies involved in undertaking the kind of investigation that would have elicited the information that eventually was generated by Dr. Selikoff's study. There were not the resources, and there was also a tremendous institutional inertia, from my perspective, with respect to the State governmental apparatus and a lot of the agencies which should have been aggressive but were defensive instead.

The point that is being made here, in terms of the absence of the kinds of resources to move into the situation and overcome that institutional resistance is a terribly important point that I think needs to still be aggressively pursued from the standpoint of the Nation as well as our own State of Michigan.

Mr. GORE. The fact remains that years after a terrible mistake was made, one that had terrible consequences, none of the victims have been able to find justice.

Mr. Albosta?

Mr. ALBOSTA. Thank you, Mr. Chairman. With your permission, I would like to read a short statement before I question the witnesses.

Mr. GORE. Without objection, we will put it in the record, but you are welcome to read it.

Mr. ALBOSTA. Mr. Chairman, many people have heard today, and maybe for the first time, about the tragedy that the people of Michigan have been living with for almost 10 years. We have heard about the accidental contamination of livestock feed by fire retardant, which contains the toxic chemical polybrominatedbiphenyl [PBB.] This contamination spread, at first undetected and then unchecked through the farms and then into the supermarkets of Michigan. As a result, 97 percent of the people of Michigan have a measurable level of PBB, the toxic chemical, in their bodies. These are the victims that are the subject of today's hearing.

I would like to thank the witnesses who have come here today to tell of this story from Michigan. Gary Schenk of Grand Rapids, who has given legal guidance to many PBB victims, thank God for you, Gary, and people like you, and Dr. Jeff Stross, who was working at the Michigan Department of Public Health in the 1970's as the PBB crisis unfolded.

I would especially like to thank you, Mrs. Snider, for being here today. You have come a long way, coming from Cadillac. It is in my congressional district in northern Michigan, and I think you represent countless numbers of people in Michigan who are the statistics of the PBB disaster. With the uncertainties about their health and their future, I am sure that many of these people who live daily are concerned about that because they suffer from the related illnesses your family has.

They are denied mortgage insurance. They are denied life insurance. They carry a burden of disaster that was not of their own making. Yet they have not been compensated by the private companies involved. They have not been compensated by the government involved. We know that is not right, but how do we resolve the problem? I think that is what we are talking about today, and I hope that these discussions will lead to some resolution of that problem.

I know the people I have been working with in Michigan since 1974 are not alone. Ours is just one example of the tragic result of a toxic chemical contamination. This is a national problem now and, I fear, a growing problem.

I would like to thank this subcommittee for their willingness to search for answers, Mr. Chairman, because the victims of this controversial incident in Michigan have been worried and concerned about this for a long time. I am sure that we will not solve this problem today, but at least we have a beginning.

I will submit my written statement for the record, Mr. Chairman.

Mr. GORE. Thank you.

[The prepared statement of Mr. Albosta follows:]

STATEMENT OF CONGRESSMAN DON ALBOSTA
COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
AUGUST 12, 1982

MR. CHAIRMAN, MANY PEOPLE HAVE HEARD TODAY, MAYBE FOR THE FIRST TIME, ABOUT A TRAGEDY THAT THE PEOPLE OF MICHIGAN HAVE BEEN LIVING WITH FOR ALMOST A TEN YEARS.

WE HAVE HEARD ABOUT THE ACCIDENTAL CONTAMINATION OF LIVESTOCK FEED BY A FIRE RETARDANT WHICH CONTAINS THE TOXIC CHEMICAL, POLYBROMINATED BIPHENYL -- PBB.

THIS CONTAMINATION SPREAD, AT FIRST UNDETECTED AND THEN UNCHECKED, THROUGH THE FARMS AND THEN INTO THE SUPERMARKETS OF MICHIGAN. AS A RESULT, 97% OF THE PEOPLE IN MICHIGAN HAVE MEASURABLE LEVELS OF THIS TOXIC CHEMICAL IN THEIR BODIES. THESE ARE THE VICTIMS THAT ARE THE SUBJECT OF TODAY'S HEARING.

I WOULD LIKE TO THANK THE WITNESSES WHO HAVE COME HERE TODAY FROM MICHIGAN TO TELL THEIR STORY:
GARY SCHENK OF GRAND RAPIDS WHO HAVE GIVEN LEGAL GUIDANCE TO MANY PBB VICTIMS, AND DR. JEFF STROSS OF THE UNIVERSITY OF MICHIGAN.

I WOULD ESPECIALLY LIKE TO THANK MRS. LORETTA SNIDER FOR COMING HERE TODAY FROM CADILLAC, A CITY IN MY NORTHERN MICHIGAN CONGRESSIONAL DISTRICT. MRS. SNIDER REPRESENTS THE COUNTLESS NUMBER OF PEOPLE IN MICHIGAN WHO ARE THE STATISTICS OF THE PBB DISASTER.
THESE ARE THE PEOPLE WHO LIVE DAILY WITH THE UNCERTAINTIES ABOUT THEIR HEALTH AND THEIR FUTURE. THESE ARE THE PEOPLE WHO FACE CONSTANT ROADBLOCKS BECAUSE THEY SUFFER FROM PBB RELATED ILLNESSES.
THEY ARE DENIED MORTGAGE INSURANCE. THEY ARE DENIED LIKE INSURANCE.
THEY CARRY THE BURDEN OF A DISASTER THAT WAS NOT OF THEIR MAKING.
YET THEY HAVE NOT BEEN COMPENSATED BY THE PRIVATE COMPANIES INVOLVED.
THEY HAVE NOT BEEN COMPENSATED BY THE GOVERNMENTS INVOLVED.

WE KNOW THAT IT IS NOT RIGHT, BUT HOW DO YOU RESOLVE THE PROBLEM? THAT IS WHAT WE WILL BEIN TO DISCUSS HERE TODAY. I KNOW THE PEOPLE I HAVE BEEN WORKING WITH IN MICHIGAN SINCE 1974 ARE NOT ALONE. OURS IS JUST ONE EXAMPLE OF THE TRAGIC RESULTS OF A TOXIC CHEMICAL CONTAMINATION. THIS IS A NATIONAL PROBLEM AND I FEAR, A GROWING PROBLEM.

I WOULD LIKE TO THANK THIS SUBCOMMITTEE FOR YOUR WILLINGNESS TO SEARCH FOR ANSWERS TO THE QUESTIONS OF THE VICTIM COMPENSATION CONTROVERSY. MY PEOPLE IN MICHIGAN HAVE BEEN LOOKING FOR ANSWERS FOR A LONG TIME. WE WON'T SOLVE THIS PROBLEM TODAY, OR EVEN IN THE IMMEDIATE FUTURE, BUT NOW THESE PEOPLE HAVE THE ASSURANCE THAT CONGRESS WILL PROVIDE THE LEADERSHIP AND THE DIRECTION NECESSARY TO MOVE TOWARD RESOLVING THESE PROBLEMS.

FINALLY, I WOULD LIKE TO THANK YOU, MR. CHAIRMAN, FOR ALLOWING ME TO PARTICIPATE AS A GUEST OF THIS SUBCOMMITTEE IN TODAY'S HEARING.

Mr. ALBOSTA. Dr. Stross, you were in the department of public health during the time when I was in the State legislature. The State, through the Governor's office, appointed a scientific panel. Would you believe in the results of that panel?

Dr. STROSS. I have never been a member of the department of public health. I have been with the University of Michigan during all that time.

I do believe that the panel that was appointed was a good one, and I would believe that their results at that time would represent the state of the art that existed at that time.

Mr. ALBOSTA. You were not with the Michigan Department of Public Health? I certainly apologize.

Dr. STROSS. No. They funded my studies, but I have been a full-time faculty member at the University of Michigan.

Mr. ALBOSTA. That may be where I heard of you.

Why is PBB still being brought into this country? You made a statement earlier that you did not believe that it was needed and that it was not being manufactured here and it was not being used in this country. There is PBB being brought into the country from Holland.

Dr. STROSS. Yes. I made the statement that it is no longer being manufactured, at least that I knew of, in the St. Louis, Mich., plant. There was one plant in New Jersey that was manufacturing it. I have been told by people in the field that there are other flame retardants that can be used that are as effective, or there is no technical need for it. Other agents could be used.

Mr. ALBOSTA. I would like to ask you some questions also, Mrs. Snider. Were you ever warned about eating meat or milk from your grocery store by anybody in the health department or elsewhere?

Mrs. SNIDER. We were never warned. It was not on the food labels.

Mr. ALBOSTA. Do you think that PBB contamination of approximately 97 percent of the people of Michigan should have happened, could have been prevented?

Mrs. SNIDER. I think it could have been prevented. Maybe initially, the first incident, but from then on, I think there should have been steps taken immediately.

Mr. ALBOSTA. How much has this cost you, in terms of dollars?

Mrs. SNIDER. I have no idea, in dollars. Just health. All I know is health. I just know John is not the way he was, since before 1976.

Mr. ALBOSTA. Have you received any compensation?

Mrs. SNIDER. No, nothing.

Mr. ALBOSTA. Who do you think is responsible for that contamination?

Mrs. SNIDER. Probably a number of people: the Farm Bureau, our State government, the coverup, reports that were not released. We could have had reports. I can remember in 1976 being in Aspen, Colo., with my father and three of my four children and some of their young friends. I was reading a Denver newspaper, and I said to my father, "Look at this. There is an article about farm families near Cadillac, Mich. They are marching in Lansing with a dead cow." I mean, I could not believe it. It said something about the cows were contaminated with PBB. I sort of laughed and that was it.

Mr. ALBOSTA. Do you believe that you should receive compensation?

Mrs. SNIDER. I think there should be something. I think something should be done. John has been refused life insurance. As he said, John is not ill, but he is refused life insurance. I questioned the life insurance company about this, and they said, "His name is on a computer. When we put his name through the computer, it came back and said he could not be insured." This was a young boy, 17 or 18 years old, once this whole thing began.

My parents helped him to purchase a home. He has had two homes. The first home he bought a couple of years ago. He tried to get mortgage insurance, and I think he did obtain it, and then he was refused. With this home that my parents have helped him with, and Farm Home Owners has helped him to purchase, he cannot afford the insurance to carry mortgage insurance. It would be too high; he cannot afford it.

Mr. ALBOSTA. As you went through this experience, have you met with others who have had similar problems? Can you tell us a little bit about their problems?

Mrs. SNIDER. I think there are. I know people who have had convulsions. I know people who have other symptoms. I do not talk to them about PBB. I am sure there are a lot of people who are very ill. We seem to have an awful lot of respiratory problems in our area, and people who would have what would start with an ordinary cold would go on forever and ever.

Mr. **Albosta.** Are there any similar to your son, John?

Mrs. **Snider.** I am not too familiar with them. You see, I do not belong to any group. I am just myself, my family and myself.

Mr. **Albosta.** I might ask that question of Mr. Schenk also. Do you know of any similar problems, such as Mrs. Snider's son has?

Mr. **Schenk.** I certainly do. I think there is one point that Mrs. Snider made that is very important in this regard. When assessing the impact on farm families who had the most direct contamination early on with the chemical, and assessing the impact on an environmental consumer—that is, somebody out in the world who is not on a farm—I would expect there to be some differences. But the striking thing about John's case is that there are many more similarities than differences. Now, I do not know about the problem with his heart arrhythmia, but we have had that with a number of clients. I do not know of one single client, particularly those on the farms who were exposed, who did not complain about this loss of contact with the world, the sensation that you are just floating off somewhere. It would accurately be described as kind of an epileptic seizure; you just go out of touch with the world. I have seen it happen.

I recall talking with John about this tremendous feeling of fatigue he had. That has been a consistent complaint from the early days of the problem.

Mr. **Albosta.** Let me ask Dr. Stross a question.

Doctor, if a toxic chemical were to affect an animal—let us say PBB as an example—if it affected it in numerous ways, it broke down his resistance to pneumonia, it broke down his resistance to almost every single disease that is prevalent that we know of, would that same chemical have an effect similar to that on human beings?

Dr. **Stross.** There is tremendous variation between different species, and you could not say definitely that it would or it would not. Many of the things we find in animals we do not find in humans. So I cannot say yes that it would or no, it would not.

Mr. **Albosta.** If it enlarged the liver, if it broke down resistance, are you saying it would not?

Dr. **Stross.** I am saying that it might or it might not, depending on what the species difference was and how much the dosage was and for what length of time it was given. There are many variables. It is possible that it could cause the same problems.

Mr. **Albosta.** I had called the World Health Organization, when I was a State representative, and I could not find anyone who could not agree with me that if a toxic substance got into a human being, that we have bones and flesh and livers and hearts, we have fat in our systems the same way, and if it affected an animal, the only response I could find, except for yours today, was that it would affect us to a lesser or greater degree, but it would affect us. I do not understand the position that you have.

Dr. **Stross.** Let me give you an example. Is your liver enlarged?

Mr. **Albosta.** I cannot tell you if my liver is enlarged.

Dr. **Stross**. Do you have PBB in your body?

Mr. **Albosta**. I have PBB in my body.

Dr. **Stross**. I am saying that there are 9 million people in the State of Michigan who have PBB in their body. The overwhelming majority of them do not have their livers enlarged like they found in the animals. I am saying that there are major differences.

Mr. **Albosta**. Let me stress to you that every animal did not have an enlarged liver. Every animal or every herd of animals seemed to be affected differently. We could not find any evidence of the same thing happening to every herd of cows, except the part that the lameness seemed to occur, the rolled hooves seemed to occur. I can tell you that I have seen many victims with high levels of PBB in Michigan who had fingernails that curled, and they turned white, and their growth was excessive, just like the animal hooves. Those are similar effects, in my opinion.

I am not a doctor. I am not a lawyer. But I think I have a degree of reasonableness. And when I see something, I cannot understand the position that you have. I think it is well that you are here today, because part of the problem surrounds the kinds of positions that the scientific world has taken.

Did you know that Governor Milliken, just as he was retiring, made one statement. In all of his career as Governor of Michigan, he only regretted one thing. He said the position he took on PBB was a mistake. That is the Governor of Michigan. I believe today that this Governor would do things differently if he had to do this thing over. I do not think there are too many other things he would do differently, but he would do it differently with PBB.

Mr. **Gore**. Will the gentleman yield?

Mr. **Albosta**. Yes, I yield.

Mr. **Gore**. Doctor, scientists are not supposed to play hunches or have gut feelings, but they often work from hypotheses and hold them some more strongly than others. If you were really pinned down, and you say in your statement that it will take many years followup to determine if PBB does cause any significant adverse health effects, what is your gut feeling? Do you think it does or it does not?

Dr. **Stross**. I believe there is a small number of people in the State of Michigan who have suffered health effects as a direct effect of PBB. I think that far more people have suffered the indirect effects from PBB, and that is that PBB has dramatically affected their lives, farm families and people like that, and that the psychological problems that they have had related to that have been responsible for many of their physical complaints. I think those are two definite groups. I think the vast majority of the people of Michigan have suffered no adverse health effects from their exposure to PBB.

Mr. **Albosta**. Doctor, I would like to get into that subject a little bit deeper with you. You know that when the Michigan Department of Agriculture was making a judgment on these cases, they were telling the farmers that they were bad managers. Obviously, that would throw a lot of stress on a farmer. The best dairy farmers in the State and probably in the Nation live up in Missaukee County. Their heritage is Dutch, and they believe that their animals are as important as their homes, and they are kept as clean. They do not think anything is any more important to them than maintaining those herds.

Let me relate to you how I got involved in this PBB problem, just briefly. I took a tour up in that area. I would take my weekends when I was out of session and go up to that area. Farmers were complaining to me, and I am a farmer myself, and I think I can judge them pretty well. They were telling me they were having problems. Animals were getting sick. Things were happening that never happened before. So I went up there and I talked to them; I became so convinced, without any degree of scientific knowledge, that they had become contaminated, and the culprit was PBB that I pursued this issue as hard as I possibly could.

Perhaps I did not know enough. It takes too long, as Mr. Schenk has stated, for anyone to get all of the knowledge necessary to defend a client in the courts. But I think there is a degree of reasonableness needed when something like this happens. I cannot understand any constructive role that it would pay to err on the other side. If you are going to err in any of these things, you ought to err on the side of safety. To take the position that this is not a toxic chemical, and that there may or may not be any adverse effects is to err on the wrong side, in my opinion.

I believe very strongly that those in the scientific world who have taken the position that you have, which is a very few people, I believe, are erring on the wrong side.

Dr. **Stross**. Let me answer that, because I think you may be totally wrong. The reason for that is, let us say that we tell everybody that this is due to PBB, and there is nothing we can do about it. You will live with it for the rest of your life, and you suffer. That is it. We cannot get it out of your body, and that is tough luck. Forget about it, and just worry about developing cancer and everything else that is going to happen.

Let us take the other tack and say, we are not sure what it is, and maybe one of the major problems you have is psychological, related to all the problems, and we try to do something about that, rather than say it is PBB and we cannot do anything about it; maybe we can help those people. Maybe we can do something. We are not going to stop looking at them; we are not going to stop examining them. We are not going to stop collecting data to determine that.

On the one hand, you are saying:

> I want to give you this label. This label is bad. This label says you have PBB in your body, and therefore all these complaints are legitimate and are definitely caused by it, and you are going to suffer for the rest of your life, because you have it."

Human nature, for the most part, with these people would be that way. We do not know that this is true.

The other thing which is against what you are saying is that people have improved over time. Even though the amount of PBB in their body has not significantly changed, all the studies have shown improvement over time. Why does that happen?

Mr. **Albosta**. Let me say what I think is a correction of that. They have not improved over time. I have people who are my constituents up in West Branch, a lady who has just recently given birth to a child. That child is blind. She has another daughter who had a perfectly healthy family, as healthy as Mrs. Snider's family. That family now has a blind child in one eye, who is about 7 or 8 years old. They have a child who has been born blind. There are more stillbirths in that county than any place else, I believe, on this Earth. There has to be some reason behind that.

Our problem is that we are not willing to go out here and look for those answers because we have someone saying the things that you are saying: Maybe it is not there. And I say that the chickens and the cows did not get sick psychologically, and I say that the humans did not get sick psychologically either. It was from that toxic chemical that they ingested, and it is still in their bodies, and it is still causing harm. I hope that eventually we find some answers to it. My belief is, the way we find answers is to say that we believe that there is something wrong, and then we try to find the answer. But we will not do it as long as there is a controversy, and there are two sides to an issue. I believe that is where the problem lies today in Michigan with the PBB situation. I do not think it is going to change as long as we have people who have another side, until at least this subcommittee, in this Congress, will take some action.

We can do things here, and I believe that very strongly. And I believe in talking about those issues. And I believe in telling the truth to the American people, no matter what it is. And I think they have the physical strength to stand that truth, whatever it is, and they would prefer it. So I disagree with you on the position that you have.

Mr. Chairman, I do not have any further questions.

I certainly want to thank the witnesses for being here again. I appreciate their testimony.

Mr. GORE. Thank you very much. I have some other questions but we are running late on time. One of our next witnesses is pressed to get an airplane, so we are going to have to move on.

Could we possibly ask some more questions in writing for the record? They would not be lengthy. Would you be willing to respond to some more?

Mr. SCHENK. I certainly would, Mr. Chairman.

Mr. GORE. Thank you all very much. We appreciate your appearance here today.

We are going to shift gears on this panel and ask Dr. Irving Selikoff to come up as a single witness, and then we will have Frank Grad and Dr. Gordon Enk as a panel after Dr. Selikoff. We ask their indulgence. Dr. Selikoff has a plane to catch, and we want to move along with him.

Dr. Irving Selikoff is director of the Environmental Sciences Laboratory at the Mount Sinai School of Medicine in New York. He is well known to anyone who follows scientific issues.

It is an honor to have you here today, doctor. I hope we have not inconvenienced your schedule. We look forward to hearing you. Please proceed.

STATEMENT OF IRVING J. SELIKOFF, M.D., DIRECTOR, ENVIRONMENTAL SCIENCES LABORATORY, MOUNT SINAI SCHOOL OF MEDICINE, CITY UNIVERSITY OF NEW YORK

Dr. SELIKOFF. I was very pleased to get this invitation to come to meet with you, not only because of the high regard I have for you and for your committee, but for the extraordinary importance of the subject you are discussing today. In fact, I think the reason that you are running overtime and we have had so much very interesting discussion is exactly reflective of the intense interest that so many people have in the subject.

Let me explain, however, my consideration of its importance. It is not simply the moral issue of victims being compensated, however important that might be. We are in the middle of a major scientific revolution at this time. Perhaps, in a sense, it is a second one or an extension of the first. This year, 1982, is the 100th anniversary of the discovery of the tubercle bacillus. Dr. Koch in 1882 first described the tubercle bacillus. That set off a major revolution in science, in that for the first time a good deal of attention was paid to the discovery of causes of disease. It became possible to consider that diseases have a cause. Until then, most scientific and medical research discoveries were describing what was seen, primarily in people who died or were very ill; end-stage disease.

Now, all of a sudden, the possiblity came before us that we could find what was causing very serious fatal diseases. Tuberculosis, in Dr. Koch's case, and soon the discovery of other disease with streptococcus and cholera, and eventually polio and the virus diseases, enteric fever of children, et cetera. That taught us a good deal. It is continuing still. With the understanding that if we find infectious causes of disease we can prevent them, as with Legionnaire's disease recently. We have a problem with Kaposi's sarcoma among people who are homosexual and some who are not. So, we are still following that track.

About 15 or 20 years ago, a second revolution occurred, in that we began to find that things that were not infectious agents—bacteria, viruses and so forth—but inorganic agents that also could cause a good deal of serious disease. That understanding, I think, became widespread around 1960 to 1965. Three things contributed to it. The first were simple statistics. We found that there was a good deal of cancer, of the stomach for example, in Japan and very little in the United States. There was much cancer of the esophagus in France and very little in Canada. We were curious; why do people in France have much esophagus cancer, which is fatal, and we have so little in this country or in Canada.

There were two possible answers. One was that people were different. The second was that the lives they were leading were different. We did not know. The second lesson we learned was from our greatest mistake, the cigarette smoking debacle that began in the mid-thirties, when we became a nation of cigarette smokers, we did not predict what was going to happen in the 1960's, 1970's and 1980's. We learned that the most common cancer in males—and this year I suspect it is going to take first place in women as well—cancer of the lung, was not due to something programed into our genes, and not simply because as we got older we got cancer, but rather it was caused by something in the environment, in our personal environment, cigarette smoking.

Everything then was suspect. If it could be lung cancer, why not bladder cancer, pancreas cancer, breast cancer, brain cancer, kidney cancer?

The third thread that began to be woven into this fabric of our understanding was the group of unnatural and unwanted experiments, generally in the workplace, in which people were exposed to various chemical and dusts and subsequently developed serious diseases, including cancer. Asbestos is a good illustration.

Scientists and others confidently began to approach this subject the way they had with infections, we had learned a very good lesson in the previous 80 years or so, to find what the agent was and then control it. For infections, to control it in various ways, with refrigeration, with antibiotics, with isolation, with sewer systems, with clean water, with the pasteurization of milk. We had learned how to do it.

That is what we began, about 1965. By 1970, the Congress approached this subject as well. It was responding to the new information that was becoming available. We soon had EPA and the Consumer Product Safety Commission, and OSHA, and a variety of other agencies. The State health departments began to change, to add the inorganic materials to what they had already been doing with regard to infection. Labor also began to approach this. I see in the audience two people, Mr. Steven Wodka was in the Oil, Chemical and Atomic Workers and Mr. Eric Frumin in the Amalgamated Textile Workers, two young scientists who were employed by labor unions to approach this new situation. Industry, too, added skilled people.

However, the very fact that this session has been convened is evidence that the optimism that we had in 1965 was perhaps not entirely justified. There are very simple statistics; you do not have to look very far. This year we expect 800,000 new cases of cancer in the United States, of which somewhat over 400,000 will die. That is roughly 1,000 per day. Why are we here today? If there were not so many victims, you would not be discussing "Should victims be compensated?" But there are victims, and these problems are still with us. Why?

One easy answer is that we have not utilized the knowledge that we have. I think the current example of formaldehyde is an obvious one. We are telling people who live in homes in which there are levels of formaldehyde that in animals can cause cancer, not to worry. We examine them and we do not find anything presently. Please do not worry. Continue to live in houses with measurable amounts of formaldehyde. The animals may get cancer, but we are not sure about humans.

Or, for example, asbestos. We know the extraordinary tragedies that are occurring, in terms of human health, and the tragedies in economics as well, where industries are going bankrupt and insurance companies are in danger. But again, if you were to go probably one-half a mile from this building, you will find construction workers doing repair and remodeling, with nobody watching to see if they have asbestos exposure. In many cases they do. So we have not used the information as well as we might.

Mr. **Gore**. Let me interject there, if you will. You will find it in schoolrooms all over this country, with virtually nothing being done about it. It is a terrible tragedy waiting to evidence itself.

Dr. **Selikoff**. We will have the evidence 30 years from now. That is the first reason. The second reason is more complicated but more germane, perhaps, to your discussions. It is not easy to get the knowledge that we need. I think Mr. Albosta's heartfelt obvious concern is, "Why are you people not giving us the information that we need, one way or the other." I agree with him. I understand Dr. Stross' reserve, that we cannot be sure, that you examine people and you do not find anything, which is true. You very often do not find anything with our present insensitive methods and instruments. I am reminded that for perhaps a century we told knife grinders in Sheffield and slateworkers in southeast England that we could not find anything wrong with their lungs—until we invented the X-ray machine. Then we could find silicosis quite easily. It is often the lack of ability of physicians and scientists to give the answers that Mr. Albosta correctly wants. I had my doubts, too, when in 1976 farmers from Mr. Albosta's district called and asked if we would come to see their situation. Governor Milliken suggested he would like this, too. I did not know whether what was being claimed was true or not, so I went to some of the farms in western Michigan. One farmer's wife told me something that pointed the issue. She said, "I don't know why it is, but we don't have any cats around any more." Now, you never find farms without cats. But here there were not many mice or rats around. They had eaten the grain that had been fed to the cattle, and they had died. The cats had eaten the rats and mice, and they had absorbed PBB. As a reflection of "Silent Spring," perhaps, there were very few birds. I do not know why, unless the worms they were eating also had PBB. Then she took me to the barns. I saw young calves that had just been born, misshapen and soon dead. So I did not believe the claims that these farmers were starving their cattle and did not know how to take care of dairy farms. I had not seen anger as I saw in Michigan when farmers were called liars. These farmers were hardworking on their farms, often in their families for 100 years. It was now being said that they were liars, they were trying to make a fast buck, they did not know how to take care of cattle. That just did not sit well with them.

In any case, it is not easy to obtain information. It is not easy for a number of reasons. First of all, many of the diseases that occur take 10, 20, 30, or 40 years to show themselves. In the interim, we have a quiet sense of security. Nothing is seen. People are fine. As you know, kids begin smoking when they are 16, 9, 18, and they do not get ill. They do not get emphysema when they are 23 or 24. They have it when they are 44, 54, or 74. There is this long free period, during which we are lulled into a false sense of security. We have just recently learned the importance of this period of latency, clinical latency. I do not know what is causing Alzheimer's disease. It is premature senility, a terrible tragedy for the individual to whom it occurs and for the family and for everyone. We do not know what causes it, but it does not occur at 20 or 30. It occurs at 50 and 60. One day, perhaps, scientists will learn. Our techniques, such as electroencephalograms, tell us little. At the moment they are very insensitive. They are insensitive in many things. I am embarrassed about this insensitivity, about our inability to give you the answers, to give the answers that Mr. Albosta wants. I remember one young man that I saw in Grand Rapids when we did our survey of dairy farmers. These were people who were much more symptomatic than the people in the general population whom we examined in 1978-79. This was 1976, 3 years after the event, so we are not talking any longer about acute effects. This young man told me that he had to quit work. I asked him why. He said, "I have to go to work on the highways, and I don't remember any more which exit to use." Or there was a young farmer who no longer knew how to stop the tractor and went into the side of a barn. When we examined him, we found nothing. There was nothing unusual with the blood serum test for PBB. Then I asked myself the obvious question: Should I be looking at blood serum? Blood serum does not cause these things. I do not know the level in the brain. I do not know the level in the nervous system. I do not know the level in the adrenal gland. I do not know the level in the thymus. We examine that which we can examine easily—blood. It is easy to get a sample of blood; we cannot get a sample of brain.

So, our inability to detect things very easily is the first thing. Second, a problem that was mentioned; the multiple agents to which we are exposed. A chemical dump site, for example. By the way, I do not call them by their nice name, sanitary landfills; they are dump sites. It would take a major laboratory a year just to analyze sometimes 1 barrel to tell you exactly what is in it, and how much. The potential for multiple interactions is there. We know how important they are now. For example, people exposed to asbestos uncommonly get lung cancer, unless they also smoke cigarettes. If they smoke, then they have five times as much lung cancer as all other smokers. You are asking us to look at what is in PBB, for example. It was correctly said that there are not only PBB's, but PCB's and many other chemicals. Even among the PCB's and PBB's there are various isomers. It is a very difficult thing to work out, since you do not know what to look for.

Third, we are talking generally about low levels of exposure. Low levels give less disease, fewer symptoms, fewer deaths. If you smoke a quarter of a pack a day, your risk of dying of lung cancer or bladder cancer is not the same as if you smoked three packs a day. It is very difficult to find things, on a population basis, epidemiologically, with low-level exposures, because you need very large populations in order to detect effects that are going to be infrequent. Instead of having them in 1 out of 10, we may have it in 1 of 1,000 or 1 of 100. You then need many thousands in order to be able to find this. We are also talking about diseases that have other causes as well. For example, if something causes bladder cancer, so does cigarette smoking, so does 4-aminobiphenyl, so does benzidine, so does beta-naphthylamine, so does chlornaphthazine. To try to sort out which one of these is responsible may be very difficult. We are beyond what we can do in science in many cases. You are asking us for answers that we simply do not have and are not easily obtained.

Then there is another reason—an open secret. The research we need is often not now being done. The chance of your getting the information that you want is slim. You have all heard and read about the war on cancer. I am a member of the National Cancer Advisory Board of the National Cancer Institute. A few months ago, I got a letter from the former chairman of the President's Cancer Panel, Benno Schmidt. He told me something that I did not appreciate. "You know, we are talking about a war on cancer, yet since 1974 there has been no increase in the cancer research budget. Last year it went down 13.5 percent." There has been no increase in cancer research funds at the National Cancer Institute—and even here, very few of these funds are used for prevention research—since 1974. I note you look with some disbelief. It would be worthwhile checking the record on the budgets since 1974. The public thinks there has been a war on cancer; it has been a skirmish. For example, with the scientific resources we have, the financial resources, the institutional resources, if there were another PBB incident in Michigan, the State health department would be unable to respond. This is true in many States. Incidentally, I can only suggest that we were lucky in Michigan, in one respect. We were lucky that it happened in Michigan and not in Wisconsin. Michigan is a dairy-poor State. It imports dairy products; it does not export them. If this had happened in Wisconsin, which exports, practically the entire country would now have PBB in their tissues.

What would happen if there were PBB in everybody's tissues? We do not know. We simply do not know. One can say, in the animals it causes cancer. True. Will it cause increased cancer risk in humans? We do not know. We have our fingers crossed. But that is not a very good defense for the American people, crossed fingers. I think we can perhaps do better than that. For example, I assume that the State of Michigan is going full blast on toxicological and pharmacological research to find out how we can get PBB out of our bodies. It would be rather better than keeping crossed fingers.

So here we are. Your committee is properly addressing this question in the summer of 1982. We are in an extraordinary position. In the last 20 years, we have learned that we can detect things that are causing disease. We can find things that are causing cancer. We have good epidemiological methods; our toxicologists have come a long way. We have excellent molecular biology in this country and elsewhere. So we know how to find things that are causing disease. In other words, for the first time in human history, we have an opportunity for preventing preventable disease, and we are not taking advantage of that. It may well be that you are right and I am wrong. My concern is trying to prevent preventable disease. Perhaps you are right that at least at the present time, the focus has to be on what you do for the victims of our past mistakes. Perhaps my remarks have been somewhat misdirected, discussing the science of prevention. Perhaps they should be considered more in your terms, the ethical question of compensating victims.

Mr. GORE. May I interject and say that our principal focus in a series of investigations has been on how to prevent these tragedies. I agree with your set of priorities. But I might just add that the manner in which victims are compensated also has an effect on the deterrence of future preventable tragedies. That is one of the issues that is woven through this examination.

Dr. Selikoff. Mr. Gore, you are correct. Speaking from personal experience, I think that the current lawsuits with regard to asbestos—you will hear from Mr. Bailey this afternoon; I do not know whether it is 16,000 lawsuits or 25,000, and whether we are going to have 100,000 or 70,000 or 150,000 lawsuits. I do not know. But I do know that those lawsuits have done much more to protect workers and other people against exposure to asbestos than all of the standards that we have had. So you are absolutely right. I would like to close by joining with you on this question of protection. The scriptures tell us that above all other considerations in the ethical conduct of our lives is the sanctity of human life. When looked at from this perspective, your discussions and your deliberations may be considered even to take on an additional dimension. In a sense, what you are discussing ultimately will be concerned with who is going to live and who is going to die: people whom we do not know, whom we probably never will meet, and perhaps even generations unborn. So I thank you again for the opportunity of presenting my views here today. Thank you, too, for having undertaken this investigation.

[The prepared statement of Dr. Selikoff follows:]

Testimony of

Dr. Irving J. Selikoff*

before the

House Subcommittee on Investigation and Oversight

August 12, 1982
Washington, D.C.

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*Director, Environmental Sciences Laboratory of the Mount Sinai School of Medicine of the City University of New York

1982 marks the one hundredth anniversary of the report of Dr. Robert Koch on the discovery of the tubercle baccilus. It also marks the beginnings of a revolution in scientific thought and perspective in which, for the first time in human history, it became clear that we could identify causes of human disease and, thereby, work to prevent them.

The promise of this new possibility was soon confirmed. Clean water supplies, sewer systems, food preservation, and vaccination led to the control of devastating infectious diseases. Many of today's doctors have never seen a case of typhus, polio has become uncommon, summer diarrhea no longer is an infant scourge, pasteurized milk is accepted as commonplace, and we may even now hope that smallpox has been eradicated throughout the world.

An important principle has been established. If we can identify causes of human disease and if these causes are exogenous - "environmental" in the vernacular - it is possible to control or eliminate them, avoiding disease that would otherwise occur.

In recent years, a second major change in scientific thought and understanding has occurred, an extension, in a sense, of that which occurred with infectious diseases. This, again, was involved with exogenous agents in our environment, although now they were not bacteria or viruses but rather other agents; metals, chemicals, minerals, gases, radiation. A new area attracted our attention, the interface between inorganic matter and the living world. But the principle was the same; agents in our environment could cause disease, sometimes equally devastating and equally fatal. We learned of neurological damage with methyl mercury, birth defects with thalidomide, anemia and brain damage with lead, metabolic changes with dioxin, renal damage with cadmium, asthma with polluted air, bone damage with fluorosis, blood dyscrasias with benzene, and chloracne with PCBs, as examples.

This understanding came at a time when the spectrum of human disease markedly changed. The first half of this century showed a sharp rise in cardiovascular diseases as causes of death, concomitant with the decrease in infectious disease mortality. At the same time, there was a steady increase in the proportion of deaths due to neoplastic diseases.

It was natural, therefore, to ask whether these non-infectious diseases might also have identifiable causes, again with the hope that if these causes could be identified, prevention and control might be possible.

The second environmental disease revolution

Before World War II, and for perhaps two decades after it, cancer was considered in some way to be associated with aging, as an almost inevitable accompaniment. As we grew older, there was increasing risk of cancer. This was reflected in the frequent classification of neoplasms as "degenerative diseases." Since aging was inevitable, it appeared that cancer was too. The best we could hope for would be the earliest possible diagnosis, and the best possible treatment.

This changed "suddenly," in a historical perspective. When did it occur? Historians of science will perhaps one day define this very accurately. At the moment, it would perhaps be well to consider that new perspectives began to be accepted about the mid-1960s. Richard Doll, in the South African Medical Journal last year, opined that it may have occurred in the early part of that decade. Perhaps he is right but it may be that, since he was part of the research group whose work led to that change, he may be too aware of the earlier, limited stirrings. I believe it took a few years - a short time, as science history goes - for the understanding to reach a sufficient number of scientists to warrant the conclusion of reasonably wide perception.

Be that as it may, by the mid-1960s (shall we use 1965 as a convenient date?) there was a different understanding of cancer. It was no longer a group of diseases programmed into our genes but rather a group of diseases with causes largely in the world in which we live, although these causes could interact with genetic predisposition.

If I had to summarize this new understanding in a phrase, it would be that "Every cancer has a cause." If we hear of someone found to suffer with a brain tumor, or a kidney cancer, or leukemia, or a bladder neoplasm, among the thoughts which cross our minds is "I wonder what caused it?" And this understanding is by no means limited to scientists but is equally appreciated by the public in general.

What happened in the 1960s to allow us to achieve this perspective? Three streams of scientific observations, each swift and powerful, came together and were interwoven into a broad, demanding flood. The first, innocently enough, was based upon the simple collection of statistics concerning cancer incidence in various parts of the world, almost a routine, didactic, dry task. The data, however, were anything but dry. However imperfect and incomplete, they nevertheless showed that there were marked differences in the incidence of cancer in various parts of the world, among different peoples, at different times. Thus, stomach cancer was high in Japan and Chile, comparatively low in the U.S. Esophagus cancer was frequent in France and East Africa, uncommon in Canada. Primary liver cancer was rampant in South China, Vietnam and Thailand, rare in Great Britain. It could be, of course, that Japanese were different from Americans, French people different from Canadians, British from Chinese. But it was also possible that the differences observed were not those inherent in, and restricted to, different groups of people but rather reflected differences in their lives.

The second critical discovery was that the most common neoplasm in men (and soon to be the case in women) - lung cancer - was due to something in our personal environments, cigarette smoking. If this could be the case, why not other neoplasms and other agents! The third set of observations was concerned with a set of undesired, inadvertent human experiments in which groups of people who had been exposed to a variety of agents subsequently developed cancer. Primarily, but not entirely, these observations were made in the workplace. In the early 1960s, it began to become clear that asbestos exposure could produce a large number of neoplasms of different types. These observations were added to similar data that had been accumulated before and additional information was gathered in the next years: lung cancer with bis-chloromethyl ether, angiosarcoma of the liver with vinyl chloride, sinus cancer with nickel smelting, bladder cancer and benzidine, benzene and leukemia, radiation and skin and thyroid cancer, lung cancer and arsenic, aflotoxin and liver cancer, chlorinated pesticides and lymphoma.

It was evident that a variety of agents could cause a variety of human cancers. Moreover, it was equally clear that many of these causes were "environmental" i.e., exogenous, outside of ourselves - what we eat, drink, smoke, breathe, are exposed to by inhalation, radiation, contact.

There was also the logical corollary - that these agents could be controlled or eliminated.

Preventing preventable disease

One might expect, from the foregoing, that we can now look to a sanguine future, in which science will learn the causes of our major illnesses and that this information will almost automatically lead to disease control; for cancer, Alzheimer's disease, premature aging, birth defects. In a sense, this optimism is warranted. It is difficult to see how so promising an opportunity will not be taken.

However, while such optimism may be justified, progress is by no means inevitable or automatic. We have the opportunity to advance, but only an opportunity. Whether we will take it or not depends on many things. There may turn out to be a wide discrepancy between what is possible and what is done. Prevention of disease by its very nature requires foresight and society's commitment to the future, not always readily achieved. This, despite our lessons of the recent past. Can we compare the treatment of polio by Sister Kenny's hot packs with the Salk or Sabin vaccines? Would we exchange the treatment of enteric fever in childhood with antibiotics for clean water, lung surgery for avoidance of smoking, drug treatment of tuberculosis of bone for pasteurization of milk, orthopedic treatment of rickets for vitamin D and adequate diet?

Moreover, for example, it will take much work and much effort to discover the causes of cancer. To the present, we know the causes of about one-third of cancers suffered in the United States. The causes of two-thirds remain unidentified.

This is by no means reason for broad pessimism. In the successes that led to our current understanding of environmental causes of disease, we not only gathered the information now at hand, but we also learned much about the methods needed to identify the other two-thirds; epidemiological techniques, laboratory studies with modern toxicological approaches, a broad background of molecular biology able to provide understanding concerning mechanisms.

There are barriers and hurdles. These are difficult but not impenetrable or unsurmountable. A number should be mentioned.

The iron grip of latency. It is now well understood that there is a long "incubation period" for many of the agents which cause cancer. Youngsters begin smoking cigarettes at 15, 9, 11, 20; the lung cancers, bladder cancers, pancreas cancers, larnyx cancers, occur at 40, 50, 60 or later. Bladder cancer supervenes decades after β-napthylamine or 4-aminobiphenyl exposure. We have learned with dismay of the clinical latency of asbestos - deaths of mesothelioma, lung cancer, gastrointestinal cancer, oropharyngeal, larynx and liver cancer, 30 or more years after the onset of exposure. We are still seeing the excesses of cancer in Hiroshima and Nagasaki almost 40 years after the bright burst of the atom bombs, and thyroid cancer decades after misapplied neck radiation. This makes for difficulty in associating cause and effect, but it is possible nowadays to scientifically condense these experiences in appropriate research modes. We are learning this, too, for the interaction between viral infections and environmental agents in such cancers as the naso-pharyngeal neoplasms of southeast Asia and the liver cancers of Madagascar, Shanghai, Singapore.

Multiple factor interactions. We live in a very complex world, and are rarely exposed to one agent or one carcinogen. How, then, to decipher their individual effects? We have begun to learn how to do this. Asbestos and cigarette smoking, benzene and radiation, uranium mining and cigarettes are examples of identifying the interaction among agents, some in the work environment, some in our personal lives. It is by no means beyond us to sort out the interactions associated with toxic chemical waste disposal.

Low-level, long-term exposures. Various "models" concerning toxic and neoplastic effects have been developed by our mathematicians and statisticians. They all, however, show much difficulty and uncertainty in identifying relationships between cause and effect at low levels of exposure. But here, too, scientific progress can be made, both by the use of large-scale population studies and by learning how to relate effects in animal systems to disease potential in man.

At the moment, these constraints are very much with us. Difficulties in identification of causation in a variety of circumstances is an important source of conflict.

Inadequate information - and conflict

Environmentally-induced disease is an area of major conflict at the present time. In some instances, this is considered to be the outcome of the discrepancy between what is known and how that information is utilized to prevent disease. We've learned that asbestos can cause disease - should people deliberately be allowed to continue exposure to the fiber? Hou much lead will cause how much disease - and are we willing to accept it? We can prevent angiosarcoma associated with vinyl chloride - how much should we ask the chemical industry to invest to prevent exposures? Do our chronically ill cardiac patients require rigid sulphur dioxide standards in our power plants; should we use coal or natural gas? How careful must we be with capacitors and transformers, lest PCBs enter our environment? These questions are sharpened by observations that disease prevention is possible. We no longer see cases of acute lead encephalopathy and mercury's Mad Hatters are limited to textbook descriptions. Bischloromethyl ether no longer freely enters the workplace and cigarette smoking cessation has been shown to be highly effective in reducing cancer risk.

There is another kind of conflict, however, less immediate but equally troublesome. This concerns not what we know and its incomplete utilization, but our failure to achieve the knowledge necessary for further advances in disease prevention. Thus, cancer incidence slowly increases and there is no assurance that this will not continue. This year we expect some 800,000 new cases of cancer in our country, and approximately 400,000 people will die of this disease this year - more than 1,000 each day. Birth defects afflict approximately 2-3% of all babies born, a source of much human tragedy. We have hardly begun to explore possible causes of premature senility.

Simultaneously, environmental scientists tell us of continued contamination of our air and water by agents which have known potential of altering biological processes, but whose disease possibilities, in these circumstances, are unknown. Our burgeoning technical society dumps wastes (benignly dubbed "land fills") with unknown long-term effects.

It is disconcerting to find that there is very little research being done on the human health effects of these potential exposures. Knowing how difficult it is to identify human disease associated with such low-level contamination (apart from acute effects!), we are often confronted with the assertion "There is no evidence that this does harm." This generally could be better rephrased as "There is no evidence as to whether or not this does harm."

The conflict, on a practical level, is then joined between those who believe that, in the absence of information, it is better not to take a chance with human life and human health and those who point to the expense and difficulty of institutional controls in the absence of firm knowledge that they are essential. This conflict, basically an ethical one, is perhaps inevitable in the absence of information that would allow firm judgments to be made.

The scriptures tell us that above all other considerations in the ethical conduct of our lives is the recognition of the sanctity of human life. We must do nothing that increases risk to life, to whatever degree.

When looked at from this perspective, the present debates on environmental pollution may even be considered to take on an additional dimension. In a sense, they are concerned with who will live and who will die, people that we don't know, will never meet, perhaps generations unborn.

Mr. GORE. Thank you. As I said before, it is an honor for us to have you testify here. You heard Dr. Stross say that he believes most of the symptoms reported by Michigan residents, the majority of them, are caused by psychological stress and not PBB toxicity. Do you share that view?

Dr. SELIKOFF. First of all, let me tell you my experience, and then you can judge it on the basis of data. I am not one given generally to opinions but rather to seeking and reporting data. When we first went to Michigan, at the request of Governor Milliken, in 1976, we examined two groups of people. We examined 1,000 dairy farmers and people who bought food directly from these farms. It is a basic principle in environmental research that if you really do not know very much about what is going on, look at those most heavily exposed first. If there was nothing wrong with the dairy farmers, I would worry very much less about those who had considerably less exposure. We also found very little in the way of objective findings, but we found a good deal that could not be explained in other ways, except to say that we did not know. We then examined some 1,800 people in Michigan's general population in 1979, 6 years after the event. We found no symptoms whatsoever that were unusual. Yet we found PBB in their tissues, in their serum and in fat biopsies. But we did not find "objective" abnormalities. That is not at all unusual. We have examined more than 300 workers at the General Electric plant in Fort Hudson, N.Y., exposed every day in their work to PCB's. They were basically feeling fine. They had chloracne and other changes in the skin but nothing very much. Many of these agents do not show any acute effects; for example, people who worked with beta naphthylamine, which causes cancer of the bladder. In some work places, if you follow people for 30 or 35 years, almost 100 percent will have cancer of the bladder. Yet, after 2, 3, 4, 5, 7, or 8 years of work, if you examine these people, there is nothing to be seen. One can do biopsies of their bladders. There is nothing to be seen under the microscope, and no symptoms. There is nothing there. And yet the imprint on those cells has occurred, and 30 years later, even if they become forest rangers in California, cancer of the bladder appears. This is true with, let us say, vinyl chloride. A man works for Union Carbide as a polymerization worker for 1 year, 2, 3 and leaves; 15 or 18 years later, he may get angiosarcoma of the liver, very specific to that kind of exposure. I cannot tell you beforehand which one will develop it and which one will not. Among asbestos-exposed workers, almost 1 out of 10 dies of mesothelioma, which virtually never occurs except with asbestos. If I examine 100 asbestos workers, I cannot tell you which 10 of the 100 are going to develop mesothelioma. Our methods of diagnosis are very insensitive at this time. Were people also worried? Did people also have stress? Sure they had stress. I cannot imagine a man losing his farm and not having stress. But by the same token, we saw many things that we could not explain, that our psychology people could not explain, apart from the neurological and psychological effects that existed. People who had marked sleep disturbance, for example. These people, however, were heavily exposed. We did not see it in the general population in Michigan with much less exposure.

I do not know whether or not there will be an increased cancer risk. This is an urgent matter. We do not know. The animals say "yes." We do not know if it will occur in humans. Should we take the position not to say anything about this? Why worry people? Why give them concern? A mother is going to say, "I should never have breastfed the baby," because we know that breastfeeding may transfer PBB to the child, if the mother has PBB in her tissues. The mother is going to blame herself for the rest of her life, "I should not have breastfed the baby," and she then continues to worry because maybe she gave the child a greater chance of having cancer. We do not know. On the other hand, if people know that they are at risk, will they be more alert to early possible signs of cancer and perhaps increase their chance of early diagnosis and more successful treatment? I do not know; this is not a scientific question alone. It is beyond science.

Mr. **Gore**. As a scientist, you are not accustomed to responding to legal questions. But when you look at this problem of compensation and the hurdle of proving causation, is it fair to assume that science is unlikely in the foreseeable future to come up with a kind of precise and certain answers that we were unable to find with respect to PBB's?

Dr. **Selikoff**. I do not think we will ever be able to give you that kind of 100 percent security that you want. Science bases itself on probabilities. We cannot tell you that this is going to occur; all we can tell is that we have increased the risk of it occurring. If you are exposed to asbestos or bischloromethyl ether, or if you have been in nickel smelting, you will not necessarily get cancer of the lung; you simply sharply increase your risk of getting it. Many people will not. Among the many things we do not know is why some have susceptibility. Perhaps it is genetically determined. We do not know this, and very little work is being done to find out why. But this is quite different from the legal approach. In the legal approach at the present time, you want a preponderance of evidence, "51 percent," "more likely than not." Scientists do not talk like that. In fact, when we report, I will give you the statistical strength of the associations that we have found: That this is a 95-percent probability or 99-percent probability or 99.9-percent probability. We never reach 100 percent. We can only talk in probabilities. You want preponderance of evidence: More likely than not.

I think there will have to be a meeting of the minds. You are doing this in this regard. In fact, the questions I heard you ask and the questions I heard Mr. Wolpe ask were really a recognition of the fact that we do not expect scientists to do other than give us probabilities, and then society, through you, will have to work out what we do with the probabilities. If it is more likely than not, do we help the people who have been injured.

Mr. **Gore**. That would tend to argue in favor of the wider use of sets of presumptions and a movement closer to the kind of approach that Mr. Schenk suggested, and that is a reasonable relationship between exposure time and symptoms. It would be extremely difficult, but we have to start thinking about a wider use of such techniques. I would like to recognize now Mr. Wolpe.

Mr. WOLPE. Thank you, Mr. Chairman. As I listened to the testimony of Dr. Selikoff, and Dr. Stross earlier, there are some very interesting similarities and also some very sharp difference. The similarity is that both are essentially saying that it is accurate that it is impossible to document whether a given set of symptoms in many people are directly attributable to contamination from PBB. Dr. Stross goes really beyond that, to argue that he does not believe that those people in fact have had adverse effects—I think that was his language. For the largest part of the population, he believes that families which were very heavily contaminated on the farm were affected, but the general population he does not believe has received any adverse effects as a result of their contamination. Dr. Selikoff, if I understand, the thrust of your testimony is that the absence of the ability to objectively present adverse effects may be simply attributable to the level of medical sophistication in identifying such effects. It may not at all be related to their absence. So, in a very direct sense, depending upon how one comes down on that question, as to whether it is the victim or the medical technician that is at fault, one ends up with a decision as to how you allocate the risks and the burdens. I must say, I am not sure why it is intuitively more obvious that we should, as we are now doing, impose the entire burden upon the victim in a situation where it is just as likely that it is the technology that is at fault rather than the victim.

Mr. GORE. That is right. If the gentleman will yield, what we need is a compassionate way to compensate victims so that they do not have to bear that burden alone and, we are hopeful, in a way that also serves to deter a recurrence of such episodes. We do not have that now.

Dr. SELIKOFF. Has it not been a legal understanding for a long time that you are going to make mistakes on this preponderance evidence concept, that you might be compensating somebody who really was not involved. You are coming down on the side of the victim, in that sense.

Mr. GORE. That is not new, and even in some of these cases, the law finds a way to compensate. It is not unheard of for people to get compensation in circumstances similar to the ones we have been discussing here today. But with these substances that act like PBBs and cotton dust, these substances where the causation is impossible for science to describe, it happens less and less frequently. In this case, you have these thousands and thousands of victims, none of whom have received compensation. I am sorry for interrupting.

Mr. WOLPE. No, no. I think that is a useful expansion. I would like for a moment to flesh out the record, in the light of the earlier testimony, and ask a couple of specific questions about the level of our understanding of the PBB episode, in terms of what the data suggest as of this point. In terms of the farm families that were the most directly affected, who experienced the highest levels of contamination, was it generally the case that it would be only an individual member of the family who experience medical effects, or would it be the entire family that had consumed the products on the farm?

Dr. SELIKOFF. That is a very good question. It was generally one member in the family, or two, not the entire family. I cannot explain that because, by and large, the blood levels of PBB ran in families. When one member of the family was high, the whole family tended to be high, even though the wife was less than the husband, probably because men ate much more of the side of beef that they had in the freezer all winter. It was not necessarily that everyone in the family had these same symptoms. We cannot explain why one person gets something and another does not. But this is true throughout medicine.

Mr. WOLPE. So the mere fact that only an individual member of the family experienced the symptoms and not the other members does not at all lead one to conclude that it is just because we reduced the likelihood that PBB was responsible for the contamination.

Dr. SELIKOFF. That is correct, but this is seen with many things that are injurious. I have examined men who smoked three packs a day for 40 years. I listen to their chests, and I find nothing, perfectly normal breath sounds. There is no emphysema. There is no bronchitis. They never developed a heart attack. They never develop a cancer of the lung. And yet there they are, with very heavy exposure. The next fellow smokes a half a pack a day, and he has a much greater risk of dying of cancer of the lung than somebody who does not smoke at all. Why, I cannot tell you.

Mr. WOLPE. There is only one other question I want to ask you, because I want to reserve some time for Mr. Albosta before we have to go to this vote. Do we have some clear indications that there are specific health effects associated with specific levels of PBB contamination?

Dr. SELIKOFF. No, because I do not know anything about "levels." I can tell you of blood levels. I can even tell you something about fat levels. We did over 800 biopsies. People in Michigan are either unusual or very generous. When we did our examinations of the general public, we had 1,200 adults. In order to have a fat biopsy, you had to sign a special permit, because we would insert a needle in a sensitive place. We brought 850 syringes because we thought we would have 400 volunteers. After 840 biopsies we did not have any more syringes left because almost everybody volunteered. Fat is much more accurate than serum. I only know what is in fat. I only know what is in serum. I have no knowledge about what was in other organs. For example, I do not know what was in the thymus gland. Dr. Stross mentioned that Dr. Bekesi in our laboratory discovered immunological defects. We went back last year and reexamined the same farmers in western Michigan, in the Grand Rapids area. We still find the same immunological defects that we found in 1976. They are still present in 1981. We found some in the general population as well. Is this an error? I do not think so at all. We took the same number of immunological tests of Wisconsin dairy farmers. They were very generous, too. Imagine these people coming, taking their own time, traveling sometimes 100 miles, taking 4 hours of their time to be examined. We took their blood and tested them. The dairy farmers in Wisconsin had perfectly normal immunological systems. It is not true for about 25 or 30 percent of the Michigan dairy farmers. I cannot tell you why. But we are beginning to understand some of the reasons for our ignorance. It is not the farmers' defect; it is our defect. For example, when we take blood and look for the PBB in the blood, we find that it is not generally equally distributed in the blood. There is more in the lipoproteins than in the other part of the protein in the blood. In fact, when you take the white blood cells, the lymphocytes, and examine them, there is more in the lymphocyte than you find in the red blood cell? And even in the lymphocyte, there is very often more in the membrane of the lymphocyte than in the center of the lymphocyte. Now, which is important? Is the lipoprotein important or the surface of the lymphocyte or the red cell? We do not know. We are vastly ignorant. To draw conclusions against the background of such inadequate information I think is very hazardous. I will certainly agree with you, Mr. Wolpe.

Mr. GORE. Mr. Albosta, we do not have much time before the vote.

Mr. ALBOSTA. We would have quite a few questions. I do not know if we would want to continue it later.

Mr. GORE. I think he is going to have to go for his plane. I am sorry it has worked out this way.

Mr. ALBOSTA. Just a couple of questions as quick as we possibly can, Dr. Selikoff. I said to Gary Schenk, "Thank God for Gary Schenk." I want to say, "Thank God for Dr. Selikoff." I really believe that you have done a reasonable job of presenting a very difficult situation, and you have tried with several other toxic materials all over the country. Certainly, we need your kind. I would like for you quickly to say, do you think there is a clear indication that PBB is carcinogenic, as suggested by the National Institutes of Health?

Dr. SELIKOFF. I do not know. We only have animal data. We have no human data whatsoever.

Mr. ALBOSTA. But it was with animal data?

Dr. SELIKOFF. Yes. Good animal studies. Dr. Kimbrough, one of those who did the studies, is a very capable experimenter.

Mr. ALBOSTA. Dr. Stross has said that stress was the cause in his opinion of the problems that were associated with what people thought was PBB. Let me ask you, do you think that is so; and if people not knowing when they do have all kinds of symptoms, certainly would they not be under more stress than if they were simply told what they had, in clear language?

Dr. SELIKOFF. This is obviously true. You are correct. You have a patient who has had a heart attack. He is probably worried about what is going to happen, if he is going to live or die, what is going to happen to his family. He has, in addition to his cardiac symptoms, lots of others. Some do not. Some people are very stoical and nothing ever disturbs them. So the question of a psychological overlay is clear throughout medicine. We saw things in the dairy farmers in Michigan, however, that were not so explained.

Mr. ALBOSTA. Another question that might be associated with that is that we label a package of cigarettes that they will cause cancer, they are detrimental to your health, and they are dangerous. That does not seem to be a stress on people. They continue to smoke. So I think you are correct.

Dr. SELIKOFF. Mr. Albosta, do they worry while they are smoking?

Mr. ALBOSTA. Maybe worry makes them smoke. I do not know which it is. Do we get the chicken or the egg first. Another question before we have to go, Doctor. Would you believe that we could say safely that if 50 percent of your belief was that something was causing symptoms would be enough, would it be 60 percent, would it be 70 percent? How would you rate in percentages, when you believe something is indicated that there is a problem created from it?

Dr. SELIKOFF. I cannot answer. That is opinion, again.

Mr. ALBOSTA. Would you believe that science could come to some agreement?

Dr. SELIKOFF. Not at the present time. Science is inadequate. Our means of detection and evaluation are so limited. I think you have an exalted view of what we can do at the present time.

Mr. ALBOSTA. Thank you very much, Doctor. And Mr. Chairman, thank you.

Mr. GORE. Thank you. Dr. Selikoff, we very much appreciate your testimony here. When we come back, we will hear from Frank Grad and Dr. Gordon Enk. We will stand in recess for approximately 10 minutes.

[Recess taken.]

Mr. GORE. The subcommittee will come back to order. We have two witnesses on this panel, Frank Grad, professor of law at Columbia University Law School, and Dr. Gordon Enk, with Enk Associates, in Medusa, N.Y. We welcome both of you gentlemen. Without objection, your prepared statements will be included in full in the record at this point. I am sorry that it is turning out to be a longer day than we envisioned. We have had votes on the House floor and fascinating testimony. The combination has led to stretching out the proceedings. But we appreciate your patience. Professor Grad, we would like to begin with you. If you would care to summarize any portion of your statement, that would be all right with us. The entire text will be put in the record, and we look forward to hearing from you.

STATEMENT OF FRANK GRAD, PROFESSOR OF LAW, COLUMBIA UNIVERSITY LAW SCHOOL, NEW YORK CITY

Professor GRAD. Thank you very much. Mr. Chairman and members of the panel, I am here in two personae, as it were: on the one hand, as a professor of law and as a teacher of environmental law, and as a person of long concern in this area, I sometimes speak for myself; but primarily I was invited here because I am the reporter of the section 301(e) Superfund Study Group report. As a matter of fact, a part of that report, particularly the recommendations, are excerpted in my formal statement. There are some 90-odd pages of that, and I might add that the report has not as yet been officially released. So you are, in effect, getting advanced notice of it. It has been completed. It has been voted on by the Study Group, and it will be forthcoming very soon. It is in the process of duplication right now.

Mr. GORE. We appreciate that, and without objection we are going to make that a part of your record, which will not be published until after your report comes out. So we appreciate it.

Professor GRAD. I am grateful for that. If a congressional committee asks you for the results of your study, you produce it, whether it has been officially released or not. I have no doubts on that score.

Let me say that this is an enormously important and difficult area, and I would like to state for the record that the section 301(e) Study Group was created under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980. It was included in the Superfund legislation. And as you may recall, at the time, the Congress did not provide any victim compensation in that legislation. Instead, it created this Study Group, composed of 12 members—3 members designated by each of the presidents of the American Law Institute, the American Bar Association, the American Trial Lawyers Association, and the Association of State Attorneys General. I say this because it is part of the story of the report. It was put together in a fashion which guaranteed the maximum amount of discussion, debate, and controversy. Each of these groups has its own particular professional interests. Each of these groups has its own professional commitments. So the report you have is what the Superfund Study Group as a whole could agree on. It is essentially a compromise report in which many conclusions did not meet every member's objectives. At the same time, I think it is fair to say that it is on the whole a decent compromise and a compromise that all of us could ultimately live with, even though you will get a few special concurrences and dissents when the report is fully available.

One aspect that the committee was in agreement on was quite simply the question of the dimension and complexity of the hazardous waste problem. You have heard a number of speakers this morning, and I have been present during most of the session today, and just about everything that has been said applies perhaps even more so in the hazardous waste situation. I will try to make this clear as I go along. We are dealing in this field with a mass of factual and legal uncertainties. The problem we have is unlike the asbestos situation, where at least you know there is a certain latency period, and that there is one particular disease entity which is directly attributable to asbestos. In the hazardous waste situation, we are dealing with a mass of substances, all of which have been dumped into disposal sites over many years following the chemical revolution that Dr. Selikoff mentioned. We have all of these vast disposed sites for hazardous wastes to which people are exposed in a variety of ways. They are exposed, quite often, because much of this stuff is seeping into the water table. They are exposed in other ways. Some of it gets to be airborne. Sometimes soils gets contaminated, and some of it gets into the food chain. There are many different ways in which this stuff can get into the human system. We do not at this juncture even have a clear measure of the number of hazardous waste sites. As a matter of fact, it is an amazing kind of situation. If industry counts, you have a few dozen or a few score. If Government counts them, you have them in the tens of thousands. The next question, of course, is, What is a hazardous waste site? It depends on what is in it, but often we do not really know what is in it. In many instances, when we start digging, we find out what is in it: we find these veritable cocktails of substances, many of which have not as yet been identified, many of which act synergistically, and all of which are likely to cause us trouble in the future.

The other aspect of it is that we have very few reported incidents of hazardous waste exposure leading to actual injury. As a matter of fact, I have along one of the supporting appendices which forms part of the study. For a bit of show-and-tell, this is the full report, running some 300 pages; and a set of appendices, running some 400 pages; and in addition, you get about 200 pages of concurrences and dissents. So it is a rather massive work that has been prepared. But I have brought along one of the appendices, which is entitled "Review of Available Information on the Health Effects of Hazardous Waste Disposal." We asked the Government, we scurried through Government literature, we went through scientific literature, and this is about what we found. We have encountered quite a few incidents of pollution. There are indeed PBB incidents PCB incidents and Kepone incidents, and other reasonably well documented incidents. But I would also like to say that we do not in this entire Nation have as yet a clearly documented case where someone recovered a judgment for personal injury from exposure to a hazardous waste site, to a dump. It is not that people have not been hurt. Part of it is that many of them find it very difficult to sue, and I will get into that in a moment. The other part of it is that in many instances where cases are reasonably clear, there is some evidence, very difficult to document, that often the responsible companies would rather settle than get some of these cases reported on the books. Very often, as you get precedents established, it gets to be more difficult for defendants to try the next case. It may be easier to settle a few and settle them reasonably inexpensively than to go ahead and get decisions on the impact of hazardous wastes disposal.

One of the problems which has already been mentioned several times here, and which of course plays a major part in this entire business, is of course the long latency period for injuries. We have it in this field, as in so many of these others. That means, quite simply, that it may often take 10, 20, up to 30 or 40 years to be able to get some of the clinical evidence of the result of exposure. Meanwhile, in many instances we find some minor effects. We have dermatitis, as a result, we have in some instances claims for headaches, neurological effects of sorts. Documentation is very difficult, but some of this has been documented and, if you wish, Mr. Chairman, I can supply this study to the committee for inclusion in the record. This is a fairly complete summary of whatever we have been able to find out on reported incidents in the hazardous waste field.

[The prepared statement, plus material mentioned above of Professor Grad follows:]

Statement

of

FRANK P. GRAD

Reporter and Member of "Superfund §301(e) Study Group"
established under §301(e) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980
(P.L. 96-510, December 11, 1980)

before the

Subcommittee on Investigations and Oversight
Committee on Science and Technology
U.S. House of Representatives

August 12, 1982

STATEMENT

of

FRANK P. GRAD
Reporter and Member of "Superfund §301(e) Study Group"

before

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Committee on Science and Technology
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August 12, 1982

I. Introduction

My name is Frank P. Grad. I am Professor of Law at at Columbia Law School, where I teach Environmental Law and Legislation, and I am the director of the Legislative Drafting Research Fund. I was invited to testify because during the past year, I was a member, and the Reporter of the "Superfund §301(e) Study Group", charged with the preparation of a Report to Congress under §301(e) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (P.L. 96-510, December 11, 1980). The Report of the Study Group, entitled INJURIES AND DAMAGES FROM HAZARDOUS WASTES--ANALYSIS AND IMPROVEMENT OF LEGAL REMEDIES, has been completed and the process of reproduction for distribution will be finished shortly. The Report has not as yet been officially released, but in compliance with this Committee's request, I have included a 90-page excerpt from the Report in my statement. The excerpt consists of the final part of the Report, on Recommended Remedial Approaches, Federal and State.

The Study Group was charged by Congress to study and analyze available causes of action for the recovery for personal injuries, and property and environmental damage resulting from exposure to hazardous wastes, and to examine the adequacy of available remedies as well as existing barriers to recovery. The Study Group was also instructed to submit appropriate recommendations, particularly with respect to the need for revisions in existing statutory or common law.

The Report of the Study Group is almost 300 pages in length, supported by an Appendix of some 400 pages. My testimony will seek to touch briefly on the highlights of this mass of materials. I should add that I shall try to do justice to the Study Group's views, and that I shall differentiate my personal views whenever appropriate.

II. Dimension and Complexity of Hazardous Waste Problem

The Study Group was impressed by the dimension and complexity of the hazardous waste problem. It found that the discussion of legal issues relating to injuries from hazardous wastes must proceed in a setting of factual and legal uncertainty because, at this time in mid-1982, it is impossible to determine the number of persons who have been injured or who could be injured by exposure to such wastes. The Study Group reviewed the various and widely differing estimates of the number of sites that contain hazardous wastes (ranging from a low of 4,802 based on an industry-sponsored study to a high of 50,000 sites based on a government-sponsored study) and reviewed the widely different estimates of the number of sites that may pose a serious danger to health. One of the problems is that of determining toxicity. There is difficulty in developing statistical evidence, particularly with respect to human exposure, because of the long period of latency that is often present -- i.e., adverse health effects with many toxic substances may not appear for 15 or 20 years, or even longer after exposure. If the person has been exposed to other toxic substances during the latency period, it may be very difficult to establish a causal link between the adverse health effects and any one hazardous substance. It may also happen that different kinds of wastes at one site may react synergistically and may create a compound more toxic than any of the wastes on their own. It might be added that the characteristics of hazardous substances create not only obstacles to scientific investigation, but also to the proof of legal claims for injuries.

For the reasons indicated, as well as others recounted in the Study Group's Report, the quantification of risks to human life and health is very difficult if not impossible. Not only are old hazardous waste sites difficult to locate, but available studies show that there generally are no records available to determine what was dumped, and who dumped it.

Other problems in risk assessment are created by the variety of past disposal practices, ranging from the most primitive to more technically advanced facilities. The determination of the path followed by pollutants in underground water is often difficult and uncertain, and the prediction of the movement of an underground plume of hazardous pollution is also unreliable. The drilling of test wells for monitoring purposes itself runs the risk of further aquifer contamination.

There appear to be further difficulties, also, in monitoring human population for exposure to hazardous wastes, because it is difficult to establish baseline concentrations of chemical substances which, in many populations, are already quite high.

The Study Group drew on a variety of government and literature sources and prepared a table on reported hazardous waste incidents, sources and hazards. Many of the hazardous waste exposures combine long latency periods with serious risks of carcinogenicity, mutagenicity, teratogenicity, and other physical harm, including neurological damage. In spite of strong efforts, however, little data, or even estimates, could be obtained on the number of persons exposed and at risk of serious injury or disease. It seems that government and scientific sources agree that it will be impossible to produce an accurate estimate of the number of hazardous waste injuries likely to emerge until more accurate information is gathered about the scope of the hazardous waste problem in general, and until scientific advances produce better information about the relationship between exposure and injury. The scientific problem of estimating the number of victims is so great because the uncertainties multiply at each step of the process of determining the number of persons exposed and the causal link between exposure and injury.

However, experience with occupational exposures to hazardous chemicals, and with such substances as Asbestos, Agent Orange, Kepone, PCB, PBB, Coal dust and DES indicates a substantial possibility of large numbers of latent injuries and future claims, and there are indications that more and larger court suits for damages are being filed. The Study Group concluded that just as Congress had enacted CERCLA on the basis of incomplete information on current and future hazards, policy makers, to protect against substantial, though uncertain risks of injury, will need to make decisions in this area on an assessment of risks that are largely unquantified.

It is fair to say that the nature of the hazardous waste problem presents the legal system with a task which is unprecedented in its scientific and medical complexity and in its potential for major health and economic impact.

III. Analysis of Existing Legal Remedies and Barriers to Recovery

A. Recurring Problems and Barriers

The Study Group analyzed available common law and statutory remedies in considerable detail, drawing both on federal and state legal sources and authorities. In analyzing legal remedies for injuries and damages caused by hazardous wastes, the Study Group followed the essential emphasis of the Superfund Law which deals with hazardous substances that have entered the environment in the form of wastes and spills. The emphasis of the Study Group Report, similar to the emphasis of CERCLA, was on remedying the adverse consequences of improper disposal, improper transportation, spills, and improperly maintained or closed disposal sites.

The Study Group in its discussions and Report first focused on certain recurring problems that face an injured plaintiff regardless of the cause of action he has decided on. These recurring issues include problems relating to the applicable statute of limitations; problems relating to the joinder or the combination of parties plaintiff and defendant, and, very importantly, problems relating to proof of causation.

The statute of limitations issue is a real problem in some states that have not as yet adopted the so-called discovery rule -- i.e., the rule that the action accrues and the statute begins to run when the plaintiff discovers or reasonably should have discovered, the injury. If the statute of limitations begins to run at the time of exposure, a plaintiff in New York, or Alabama, for instance, may have lost his right to bring a lawsuit before he ever knew of his injury. With a latency period of twenty or more years, the usual three-year statute of limitations running from the time of exposure will lapse long before the plaintiff knows that he has been hurt.

A variety of problems relate to the issue of defendants' responsibilities and to the appropriateness of joinder of defendants. The issues are complex and they are analyzed in detail in the report. The problems are again related to the peculiar nature of the hazardous waste problem and to the long latency of hazardous waste injuries. When an injury due to exposure to hazardous waste has occurred, it is extremely difficult to relate the injury to a particular responsible party, because commonly wastes from a variety of sources were dumped at any one site and it is difficult to identify the hazardous waste responsible for the injury. Moreover, during a twenty year or longer latency period, the ownership of the site has probably changed several times, and the question arises whether the present owner is responsible for the effects of conditions caused by an earlier owner.

Such issues give rise to questions of apportionment of liability -- i.e., whether joint and several liability, "market share" or enterprise (industry-wide) liability should apply. Without dealing with this issue in detail (as does the Study Group Report), it is clear that in hazardous waste cases, the problems of apportionment and allocation of liability can be an insurmountable barrier to recovery, because a plaintiff (usually after a lapse of many years) will be unable to identify -- i.e., he will be unable to meet the burden of proof of pinpointing -- which of several sequential landowners or dumpers is responsible or has contributed to his injury. Thus, it is likely that plaintiff will lose his case unless some theory of joint liability is adopted or unless the burden of proof is shifted to the group of defendants to show which of them caused the injury where all acted wrongfully, or where several actors have caused an injury that is theoretically divisible but practically indivisible.

The need for the joinder of parties plaintiff in hazardous waste cases is of a different nature. In view of the complexity of hazardous waste litigation, the cost of litigation -- including the cost of securing expert medical and scientific testimony necessary to prove causation -- is a very substantial barrier to plaintiffs' recovery. To reduce litigation costs is to make it easier for persons with similar claims to join in one action. Exposure to hazardous wastes may often affect several individuals in one location, and elements of exposure or causation may be similar or identical. Joinder of plaintiffs through several available techniques will reduce each plaintiff's cost for the kind of sophisticated expert witnesses necessary to prove causation. It should be added that the devices for the joinder of parties are not uniformly available in all jurisdictions.

A major recurring issue, regardless of the particular cause of action, is that of proof of causation. The plaintiff must prove in each case that there is a causal nexus between the injury or disease complained of and the environmental condition (such as the disposal of hazardous wastes) for which the defendant is allegedly responsible. The issue of proof of causation is rendered more difficult by a number of recurring circumstances. In the case of exposure to a hazardous waste disposal site, the plaintiff may find it difficult to pinpoint responsibility because the site has usually received a variety of hazardous wastes from a variety of sources over an extended period of time. The problem will be rendered even more complicated because of the long latency periods frequently associated with injuries from hazardous waste exposures. During a ten-to-forty year latency period, the site may have changed ownership several times -- and the plaintiff, too, has probably moved about to different locations, thereby potentially exposing himself to a variety of other environmental influences or toxic exposures.

Proof of causation will require large amounts of sophisticated medical and scientific testimony to demonstrate the epidemiologic or statistical correlation between certain diseases and certain environmental exposures. The nature of the exposure itself--whether by air, water, ingestion, inhalation or other contact--may require testimony, so as to show that the kind of exposure, its duration or frequency, and its intensity, could or did produce the kind of disease or injury suffered by the plaintiff. Medical testimony on the etiology of the disease is necessary to show how the particular substance caused the condition complained of.

In addition to reliance on expert witnesses, some reliance on government data produced under a variety of federal laws (such as the Federal Insecticide, Fungicide, and Rodenticide Act, FIFRA; the Toxic Substances Control Act, TOSCA; the Resource Conservation and Recovery Act, RCRA; the Occupational Health and Safety Act, OSHA; the Federal Food, Drug and Cosmetic Act, and the Federal Clean Air and Clean Water Acts) may eventually be possible. Moreover, in certain circumstances such as in Workers' Compensation Laws, rebuttable presumptions may serve useful probative purposes. But it is clear that proof of the causal connection between exposure and injury is an almost overwhelming barrier to recovery, particularly in smaller cases (regardless of their merit) because the cost of mounting the massive probative effort and the arrays of technical and scientific evidence will be prohibitive.

B. Available Statutory and Common Law Causes of Action

The Report of the Study Group examines virtually all available federal and state statutory remedies, and all common law tort remedies available in the several states. It finds that there are no federal statutes that provide remedies for personal injury due to hazardous waste in non-occupational settings. An examination of state statutes provides only four instances of recent legislation--California, North Carolina, North Dakota and Rhode Island--to establish liability, usually strict liability, for personal injuries resulting from exposure to hazardous waste. However, none of the states, except California, aid the plaintiff in meeting his burden of proof of causation.

In general, it is clear that following the Sea Clammers case, (Middlesex County Sewerage Authority v. National Sea Clammers Association, 453 U.S. 1, 101 S. Ct. 2615 (1981)), there is no basis for reliance on implied private rights of action derived from federal pollution control statutes, and there can be no reliance on the federal common law of nuisance following Milwaukee v. Illinois and Michigan, 451 U.S. 304, 101 S. Ct. 1784 (1981), as applied in the Sea Clammers Case. There is some basis for reliance on the use of a violation of a statutory standard in a negligence action to show a breach of a duty of care -- i.e., to establish negligence per se or to provide some evidence of negligence. Some reliance, in a few states, may also be placed on state public nuisance statutes, which sometimes provide for private causes of action for their enforcement. An examination of statutory remedies, however, leads to the conclusion that to recover from hazardous waste injuries, a plaintiff must currently rely primarily on state causes of action.

The Study Group Report examines available common law tort actions in several states, including negligence, trespass, and private and public nuisance actions and finds that all of them have some useful applications in suits for hazardous waste injuries -- subject, however, to the usual barriers of proof of causation, statute of limitations, and allocation and apportionment of liability.

The Report also examined the full range of strict liability approaches to hazardous waste injuries. It finds that strict liability for injuries due to hazardous waste appears to be a viable theory because of the dangerous nature of the activity of hazardous waste disposal. Analyzing the various formulations of strict liability under the Restatement and the Restatement (Second) of the Law of Torts, the majority of the Study Group indicated its preference for a formulation of strict liability based on the magnitude of the risk, deemphasizing such elements as the locale of the activity, or the forseeability of harm, which form part of other formulations. The Study Group's analysis emphasizes the application of strict liability to spread costs, and to impose liability on those who economically benefit from the polluting activity and who are in the best position to reduce or eliminate the risk. The Report notes, however, that strict liability, does not resolve the problem of proof of causation, so as to link the defendant's dangerous activity with the injury to the plaintiff.

The Study Group concluded, after its review of the law, that although causes of action do exist for some plaintiffs under some circumstances, that a private litigant faces substantial substantive and procedural barriers in a personal injury action for hazardous waste exposure, particularly where the individual claims are relatively small. Although causes of action are theoretically available to hazardous waste claimants, the difficulty of recovery for valid claims is magnified by the procedural barriers referred to earlier, and by the cost of litigation, with proof of causation and problems of lengthy latency affecting every aspect of the litigation process.

Proof of causation in an action for injury from hazardous wastes requires complex medical and scientific evidence. Although increasingly more is becoming known about the nature of the risks, causation issues remain formidable problems. Unless new means evolve in this area for marshalling such evidence in a scientifically credible but significantly less costly way, the causation barrier is likely to remain substantial.

Plaintiffs who are willing to undertake the major costs of litigation would be aided substantially by an easing of plaintiffs' burdens in regard to causation, apportionment of damages, and statutes of limitation. However, persons with smaller claims are unlikely to recover at all unless further steps are taken to reduce both legal and economic barriers to their recovery, so as to facilitate their assertion of valid but difficult claims. This supplies the basis for the Tier One compensation remedy recommended by the Study Group in Part IV of the Report.

IV. The Recommendations of the Superfund §301(e) Study Group

As part of my testimony as Reporter of the Superfund §301(e) Study Group, I include a lengthy excerpt from the Study Group Report, encompassing the Group's recommendations.

By way of brief and superficial summary, the Study Group proposed two kinds of remedies; the first, a so-called Tier One remedy to provide for no-fault compensation for hazardous waste injuries managed by the several states under a federal program. This compensation plan, operating somewhat like Workers' Compensation, would provide full recovery for a person's medical expenses and, with certain limits, recovery for two-thirds of a person's loss of earnings. Death benefits for close surviving dependents are also provided. In addition, injured persons would have the choice of proceeding with a personal injury claim under existing tort law. A number of recommendations are addressed to the states to improve available tort remedies, referred to in the proposal as Tier Two. A person who is injured could seek compensation in Tier One and then claim in Tier Two, repaying the Tier One compensation award out of any payment obtained in the lawsuit at Tier Two. A person who uses both tiers would also be required to pay certain costs if the court found that the settlement or award in Tier Two did not substantially exceed the compensation award at Tier One, so as to avoid frivolous and cumulative use of both systems. The Study Group's Proposal also provides for the continuation of normal lawsuits on Tier Two for private property and environmental damage. The Study Group also recommended that the federal government make Superfund monies more readily available to the states so that the states could proceed to undertake a cleanup of old hazardous waste sites with greater dispatch than in the two years since the passage of the Superfund legislation.

The Study Group also recommended that more attention be paid to the prevention of problems arising out of the use and disposal of hazardous substances, so as to avoid the need for remedial provisions for hazardous waste injuries.

To rely on a summary of the recommendations, even a more extended summary, would be undesirable, because the Recommendations that follow reflect the difficult issues that faced the Group in making its recommendations, many of which were far from unanimous, as the Discussion of each Recommendation itself indicates (A number of members of the Group also prepared separate comments not here included). Thus, the Recommendations are the result of compromise and negotiation, and represent the hard-fought agreement of a very diverse group of attorneys. In the view of the Reporter (whose personal views favor an emphasis on the no-fault Tier One remedy), this Report is not to be viewed as the final word on the subject. Problems of regulating hazardous substances and hazardous wastes are likely to be with us for a long time. Legal and technical solutions, too, will take time to develop, to take account of the experience gathered in their initial application. Law reform and the development of sound legislation has always been a continuing development, and the Reporter views this Report as a significant step in an incremental process.

/EXCERPT FROM/

INJURIES AND DAMAGES FROM HAZARDOUS WASTES -- ANALYSIS AND IMPROVEMENT OF LEGAL REMEDIES

A Report to Congress in Compliance with §301(e) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (P.L. 96-510, December 11, 1980) by the "Superfund §301(e) Study Group"

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July 1, 1982

IV. RECOMMENDED REMEDIAL APPROACHES, FEDERAL AND STATE

Introduction

The Study Group has reviewed existing statutory and common law remedies to provide compensation to persons who have suffered personal injury or property damage as a result of exposure to hazardous wastes, and the Study Group has also reviewed existing barriers to recovery. The Study Group concludes (1) that there are causes of action on which to base a claim for damages for such injuries or damage; (2) that there are many substantive and procedural barriers to recovery; and (3) that existing causes of action and existing barriers to recovery will allow some recoveries in a number of highly selected cases. Available remedies are inadequate in view of the substantial number of claims that may arise, and the factual and legal complexities that will be involved in their litigation. To put it differently, the existing legal remedies and actions may be adequate in spite of existing barriers, to deal with very large claims. The system is inadequate, however, to deal with the possibility of mass torts, or multiple exposures, and with claims by hundreds of victims, each of whom suffered a few thousand dollars in damages, unless procedures are found, not readily available at present, to join or combine such small claims. The smaller number of very large claims which will be handled, most probably, on a contingent fee basis, will permit the kind of detailed trial preparation and the detailed marshalling of highly complex, scientific and medical evidence, and will warrant the very substantial cost of such trial preparation. The substantial damages at stake will also warrant the lengthy trials and the lengthy litigation delays inevitably involved in such litigation. Such extended plenary court actions may not only result in very substantial judgments, but will also produce damages for pain and suffering, and recoveries for loss of earnings without the imposition of an upper limit.

Accordingly, the Study Group finds that there is a need to provide two kinds of legal remedies for injuries resulting from exposure to hazardous wastes. One remedy, here referred to as the "Tier One" remedy, an administrative compensation remedy, is designed to meet the need for an efficient and speedy remedy for the emergence, either of mass injuries, growing out of the simultaneous, or near-simultaneous exposure of numerous persons to a particular hazard, or for the emergence, within a short time span, of many cases with diseases that have remained latent for many years, that are likely to be "discovered" within a relatively short time. The barriers to recovery and problems encountered in tort actions would place a substantial, unwarranted strain on the judicial system, and would, by the same token delay if not defeat the victims' right to recover for their injuries. The "Tier One" compensation system is a risk-sharing system similar in its approach to such older, employment-related, insurance systems as workers' compensation. The need for such a compensation system depends on the number and nature of injury cases in the future, and if regulation under RCRA is effective, there is hope that there will be few cases of injury from hazardous waste in years to come. The recommendation for the compensation remedy is based on the possibility and concern that past hazardous waste disposal practices may have created a backlog of injuries and exposures that the legal system will need to clean up. This judgment of the hazard and of the need for remedies is a judgment the Study Group shares with the Congress that enacted CERCLA.

The Recommendations and discussion which follow will first address the "Tier One" federal compensation remedy, and then the "Tier Two" remedy, consisting of a continuation of the existing plenary state court actions with some recommended substantive and procedural modifications.

First Recommendation: Federal Administrative Compensation and State Judicial Remedies

In light of the limited availability and the inadequacy in many situations of existing remedies, and particularly in light of the inadequacy of the present tort system to deal with relatively small claims, the Study Group recommends a remedial program that is intended to provide means of recovery for victims of exposure to hazardous wastes, utilizing both administrative and judicial remedies, as may be appropriate.

In broad outline, the Study Group recommends a two-tier system of remedies. The first tier, which is expected to be the part of the system most heavily relied on by persons injured by exposures, will provide an administrative compensation remedy without a showing of fault. The administrative compensation scheme would be established by federal legislation, but would be operated largely by the states pursuant to federal law. Its major purposes would include the provision of limited compensation to meet the economic and medical needs of persons injured in a manner which is more prompt and less costly than tort litigation. Such a compensation system would also provide a useful method of cost allocation and sharing, and a socially responsible method of internalizing the emerging costs of industrial and technological development.[1]

The second tier would keep intact the existing system of tort law in the several states, with some recommendations for procedural and other improvement. It is expected that these traditional, established judicial remedies will be used less frequently because of the difficulties of recovery under existing tort remedies (including negligence, trespass, nuisance and strict liability), because of the evidentiary burdens and costliness of scientific and medical proof, and because of such practical obstacles as delay and the high cost of litigation. The plenary judicial action under existing tort law, unlike the compensation remedy, provides the usual unlimited damages in tort, including full recovery for loss of earnings, medical expenses, and pain and suffering. As is usually the case in established tort actions, the plaintiff who seeks the unlimited recovery also faces greater uncertainty and greater evidentiary burdens than the person who recovers under the administrative compensation remedy.

The Study Group was unanimous in recommending the two-tier approach, and it was also unanimous in its recommendation that the amount of any compensation award recovered by the claimant on Tier One be deducted from, and be paid back out of, any judgment or settlement recovered in a Tier Two plenary action, if both tiers are to be available to the claimant.

The Study Group, by a 9 to 3 vote, agreed on the recommendation that a claimant who has obtained a compensation award in Tier One should be free to bring a plenary action in Tier Two. However, if such a plenary action results in a judgment or settlement which does not exceed the total amount of the compensation award by 25 percent or more, the judge should have the discretion to assess the costs of the plenary action and the costs of expert witnesses against the plaintiff. In exercising this discretion, and in assessing the amount of these costs against the plaintiff, the judge should consider whether the plaintiff's action was brought in good faith, keeping in mind that the purpose of this provision is to avoid frivolous and duplicatory law suits.

In making these recommendations for legal remedies the Study Group wishes to emphasize that in its view, technological solutions should be advanced so as to prevent the future generation of hazardous wastes and avoid the disposal of toxic substances whose persistence will extend hazardous waste problems into an indeterminable future.

Discussion

The Tier One broadly available administrative compensation remedy is recommended because of the desirability of an effective, speedy remedy, needed for the possibility of mass injuries with long latency periods emerging gradually during the next ten to thirty years from earlier exposures. Such a remedy might also lessen the degree of opposition to the siting of needed hazardous waste facilities, though it was also clear in the Study Group's discussions that a technological solution that would stop the generation of such substances or that would render them harmless, thus avoiding future disposal of hazardous wastes would be preferred. In passing CERCLA in 1980, the Congress acted on the basis of limited information and evidence of substantial risk. Now, some 18 months after the passage of the Superfund legislation, some more evidence of hazard has become available, though it too is inconclusive, compelling the Study Group to make its recommendation on remedies for personal injuries on the basis of an evaluation of the risks similar to the evaluation of risks by Congress in passing CERCLA.

While the evidence of personal injury from exposure to hazardous waste dumps or disposal sites that has been referred to earlier[2] is sketchy and difficult to quantify, it nonetheless points to the major risks of toxic chemicals and hazardous wastes; to inadequate attention, over many years, to what are now regarded as better, if not sound hazardous waste disposal practices, and to the fact of past exposures of substantial populations to contaminated water supplies, to contaminated soils and to airborne vapors and emanations. While there are as yet few reported decisions involving injuries from hazardous wastes, the available evidence points to a potential for the emergence of many cases, as in the asbestos,[3] diethylstilbestrol,[4] and Agent Orange[5] situations. The possible emergence of many hazardous waste cases, caused by a vast variety of chemical wastes, may create the kinds of evidentiary problems of mass litigation and consequent overloading and congestion of the courts which would be unacceptable to the persons injured and to the society as a whole.

The retention of the established system of plenary tort actions on Tier Two would continue to serve the same values served by tort law generally[6]— the vindication of personal and societal rights by law suits that assess liability in direct relationship to personal responsibility for harm, and that, relying on such an assessment of liability, impose larger judgments for damages that include damages for pain and suffering and a full measure of loss of earnings. In relying on such an assessment of liability, it is said that such plenary actions also serve the purpose of emphasizing reasonable care and discouraging carelessness. The second tier of plenary tort actions is likely to involve fewer and larger cases than the first tier, because the plaintiff will have to be in the position of waiting out the slow process of litigation until the judgment makes him financially whole. Moreover, the complexity and sophisticated evidentiary problems in such cases will call for representation by thoroughly trained and experienced lawyers who are not likely to accept the smaller cases, however valid the claims[7].

The Study Group spent a considerable amount of its time addressing the choices for allowing a claimant to proceed on either tier or on both. One choice provided for a binding election between Tier One and Tier Two,[8] another choice provided for free access by claimants to both tiers[9]. There was considerable sentiment in favor of liberality and free choice, and the notion that an impecunious claimant in need of rapid compensation should not be compelled to give up his right to a plenary action to gain the immediate benefit of the compensation that he may need to sustain himself and his family. This sentiment was countered by the view that to provide a plenary tort remedy on top of a broad compensation remedy would make the system unacceptably expensive and thus ultimately unworkable. The argument that cumulative remedies would lead to excessive costs was in turn denied because it was unlikely that a claimant who had already received a rather generous compensation award would seek an additional tort recovery, all the more since few personal injury lawyers would take such a case except in the unlikely event that substantial additional damages could be recovered. On the other hand, it was argued that there was nothing to stop a claimant from seeking to cumulate remedies, and that the reduction of the tort recovery by the amount of the compensation award received earlier would not be sufficient to discourage a claimant who had already received compensation from trying his luck in a plenary action. It was urged, too, that adding the severity factor of substantial tort recoveries to the costs of a broadly available compensation remedy would cumulate the most expensive features of both systems -- a point that was both disputed and supported by reference to the "add-on" features of a number of automobile no-fault systems.[10]

Nine of the twelve members of the Study Group, as a compromise, agreed on the recommendation that follows (five members indicated that they would prefer binding election between Tiers One and Two, two favored such binding election if the benefits would be increased substantially, and four members voted against any access limitation between the Tiers; one member indicated "neither" as his choice). The compromise chosen recommends that claimants be allowed access into either tier, so as not to compel a claimant to give up his plenary tort remedy because of his immediate and pressing need for compensation. On the other hand, to protect the economic feasibility of the system, it was considered necessary to assure that the claimant would not cumulate remedies unnecessarily by gambling on a more substantial tort recovery after he had obtained a compensation award. To avoid such a gamble, it was recommended that a claimant who does not recover at least 25 percent more in the plenary tort action than in the compensation proceeding, be subject to assessment of the court costs and of the cost of expert witnesses. Such an assessment, to be made at the discretion of the judge in the plenary court proceeding, is to take into account whether the plaintiff's action was brought in good faith, with a view of avoiding frivolous and duplicatory proceedings.

A claimant who brings a plenary court action after he has obtained a compensation award should be deemed to have waived the right of judicial review of the compensation award, and the earlier compensation award should not give rise to any collateral estoppel in the later plenary court action. The reference in such court action to the earlier compensation proceeding should be regarded as improper and grounds for the declaration of a mistrial.

The discretionary assessment of costs and of the expense of expert witnesses to discourage needless or bad faith duplication of procedures was suggested by similar provisions in California law which allows trials *de novo* after mandatory participation in judicial arbitration proceedings for claims below a set amount.[11] In substance, the recommendation avoids an entry barrier between Tier One and Two, but imposes a sanction for the abuse of the system by claimants who gamble on Tier Two when the Tier One remedy has met all of their reasonable claims. The discretionary imposition of this sanction is in addition to, and independent of, the provision that the earlier compensation award be deducted from the amount of judgment or settlement in the plenary tort action, and that it be paid back to the compensation system in order not to deplete the compensation fund, leaving full damages to be paid in Tier Two.

Towards the close of the Study Group's deliberation, another proposal emerged, supported by several members of the Group, whose views are incorporated in a comment following this Report. Briefly, it was proposed that compensation awards at Tier One be increased substantially, so as to take into account non-pecuniary losses that are difficult to quantify--such as disfigurement, loss of ability to procreate, and some aspects of damages treated as general damages or under the rubric of pain and suffering in plenary actions. The examples of the systems of scheduling compensation under New Zealand and Australian legislation were relied on, as set forth in J. O'Connell and R. Henderson, in Tort Law, No-Fault and Beyond, THE FUTURE 696, 704-10 (1975). To make up for this greater liberality of compensation awards at Tier One, it was proposed that the judge in any subsequent effort to recover at Tier Two exercise greater discretion and control in allowing or barring access to that tier. It was the minority view that the barrier between Tier One and Tier Two in the Study Group majority recommendation is not severe enough to avoid "gambling", that is, obtaining easy recoveries at the administrative level, and then pursuing the plenary action. To make up for this lack, it was suggested that a discretionary system for judicial approval be established, allowing access to Tier Two only on a showing under described standards that there was good cause that the claimant did not believe he or she had, or was likely to have, sustained the more serious injuries for which he or she was claiming on Tier Two. The test for access to Tier Two was analogized to the rigorous application of the doctrine of mistake applicable to setting aside a general release in a personal injury claim. The proposal was criticized by some members of the Group on the grounds that the increased scope of compensation awards would defeat the Tier One compensation system by making it too expensive. Other members of the Group took the view that the standards for access to Tier Two were too difficult to define under the proposal, while others viewed the proposed access barrier as entirely unacceptable.

Second Recommendation: Tier One -- A New Federal Administrative Remedy for Injuries from Exposure to Hazardous Wastes

The Study Group recommends the establishment by federal law of an administrative compensation system to compensate persons injured by exposure to hazardous wastes, as such exposure is here more particularly defined. The system, to be established by federal law, is to be administered by the several states in accordance with the provisions of the federal law.[12]

The purpose of the new compensation system is the protection of persons injured by exposure to hazardous wastes through the creation of a speedy and effective remedy that will provide full coverage of medical expenses, and substantial, though limited, coverage for loss of earnings.[13]

Exposures to hazardous wastes to be covered by the plan include exposure to hazardous waste sites, by contact with contaminated soils, inhalation of vapors and other emanations from such sites, and the ingestion of hazardous wastes in contaminated water supplies, contaminated by leaching or other infusions from such hazardous waste sites, or by spills from such sites. Included in such covered exposures shall be injuries resulting from the transportation of hazardous wastes and injuries resulting from any hazardous substance spill. A proper line should be drawn between injuries from hazardous wastes as covered by CERCLA, the Superfund legislation, and injuries not so covered, such as hazardous air pollution emissions under the Clean Air Act, or hazardous effluents regulated under the Clean Water Act. The legislation that establishes the compensation system should indicate clearly that the system of compensation for personal injuries is coextensive with the system established by CERCLA for the cleanup of old sites, the cleanup of spills, remedial steps, and for the consequences of transportation accidents. The purpose is not to create a compensation remedy for all private injuries from environmental pollution, but only for those that involve the disposal, transportation and management of hazardous wastes.[14]

Another exclusion which should be set forth in the legislation is of occupational exposures. The Study Group does not recommend that the proposed compensation plan take over any of the functions of the state workers' compensation law. A person who is employed in hazardous waste disposal activities, either in the transportation of hazardous wastes or in a hazardous waste site, who suffers injury or disease growing out of his employment should look to available remedies, rather than to the new compensation remedy here proposed.[15]

Discussion

The Recommendation seeks to define the scope of the compensation remedy. Its purpose is not to compensate for all exposures to environmental pollution, but to limit the remedy to exposures related to injuries and disease resulting from exposure to hazardous waste, whether in the course of disposal, in the transportation of hazardous wastes, or resulting from hazardous waste sites. The intention of the proposed compensation plan is a limited coverage related to the kind of hazardous waste exposures covered in CERCLA.[16]

As noted in other parts of the Report, CERCLA deals with hazardous substances that have entered the environment in the form of wastes and spills. Thus, the compensation plan is not intended to deal with injury from exposure to hazardous substances generally, which are not addressed by CERCLA. The purpose of the compensation plan is to compensate for the adverse consequences of improper disposal, improper transportation, spills, and improperly maintained or closed disposal sites.

Such a new compensation system would also provide a mechanism for providing compensation for personal injuries caused by past disposal of hazardous wastes at "abandoned" or "orphan" sites. By definition, no adequate means of compensation currently exists for this limited class under either state or federal law.

Third Recommendation: Tier One -- Establishment of the Claim for Compensation; Filing of Claim; Causation; Presumptions

The Study Group recommends that the "Tier One" compensation be based on a simple claims procedure. To be eligible for a compensation award, the claimant must file the claim no later than three years after he has discovered or should reasonably have discovered, the injury or disease and its cause, whether such discovery occurred before or after the effective date of the federal law establishing the compensation plan. The essential elements to establish a claim should consist of proof of exposure, proof of the disease or injury, and proof of causation -- i.e., proof that exposure and disease or injury were causally connected, and, finally, proof of compensable damages. It is further recommended that proof of causation include reliance on appropriate rebuttable presumptions.

Discussion

Filing of Claim

This Recommendation applies the discovery rule to the filing of compensation claims. The claim must be brought three years after the disease or injury and its cause were discovered or reasonably should have been discovered, and includes claims discovered shortly before the effective date of the plan so as to include a limited number of claimants who would be without a remedy unless covered in this fashion. The purpose is to include recent victims of exposure whose need gave rise to the development of the remedy.

Proof of Exposure

The evidence to prove exposure might include such elements as the nature of the exposure, including skin contact, ingestion or inhalation, and duration of exposure to the type of chemical substance or hazardous waste that is known to cause injury.

Proof of Disease or Injury

Evidence to show disease or injury will involve medical testimony based on medical records and on physical examination and clinical tests of the claimant. Proof of disease may present certain difficulties because of the relative recency of the recognition and diagnosis of hazardous waste-linked illnesses. There is an increasing number of diseases, however, that can be attributed to exposure to toxic substances, and the disease registry established under the CERCLA should help to ease the diagnostic problem.[17]

Proof of Causation

Proof of causation is one of the major obstacles faced by a plaintiff in a court action for exposure to hazardous waste. As noted earlier, a plaintiff faces a substantial burden of adducing complex scientific and medical testimony to relate the exposure to the disease. Such testimony requires the production of highly qualified and highly paid expert witnesses, and it may also require the preparation and production of detailed epidemiologic and statistical materials. The necessary proof of causation is not only complex, but it is likely to be very expensive. It would clearly be too expensive to warrant the litigation of many cases, except fairly large ones, and this is one of the major reasons for relying on a compensation system rather than on judicial remedies.

The problem of proof of causation may be eased by the use of rebuttable presumptions, and the Study Group recommends the use of rebuttable presumptions in administrative compensation proceedings. The purpose of such presumptions is to ease the claimants' burden of proof with respect to causation, and to ease the economic burden -- both on the claimant and on the system -- of the often repetitive introduction of complex scientific and medical evidence to link particular diseases with recurring or multiple exposures of different claimants to certain hazardous wastes.

The use of rebuttable presumptions is discussed at length in the Fourth Recommendation. Our Recommendation that such presumptions are not appropriate in the plenary action in Tier Two, and different views on that issue are commented on in the Fourth[18] and Ninth Recommendations.[19]

Fourth Recommendation: Tier One -- Rebuttable Presumptions

The Study Group recommends that legislation establishing the compensation system provide for two kinds of rebuttable presumptions; the first extending merely to the issue of causation, the second going beyond proof of causation into such issues as the nature and extent of the disease or injury resulting from exposure to hazardous wastes. The first set of presumptions would be based on the proof of several elements which then give rise to rebuttable presumptions of causation. The second set of presumptions should be based on the proof of the same elements as well as on previously prepared and adopted "Toxic Substance Documents" based on scientific data that link the exposure to certain designated hazardous wastes to their known effects in causing injury or disease. The second set of presumptions would also meet additional elements of proof.

In both instances, the same basic showing should be made. If the claimant in an administrative compensation proceeding proves:

1) that the source involved in the claim was engaged at the time of exposure in the production, transportation or disposal of hazardous wastes; and

2) that the claimant was exposed to such hazardous waste by proximity, contact, ingestion, inhalation, or by some other form of exposure; and

3) that the claimant suffered death or the kind of injury or disease which is known to result from such exposure then the following rebuttable presumptions should arise:
(a) that the exposure to the hazardous waste generated, transported or disposed of, by or in the source, contributed to the death, injury or disease of the claimant; and
(b) that the source by or in which such hazardous wastes were generated, transported or disposed of was responsible for the claimant's exposure and for the resulting death, injury or disease.

In the rebuttable presumption set forth above, to show that death or the kind of injury or disease suffered by the claimant is "known to result" from such exposure, a Toxic Substance Document (as described infra) shall be relied on, if such a document has been prepared for the specific hazardour substance or waste.

In addition to these basic presumptions, additional presumptions may apply if the federal agency authorized to administer the compensation system (which will be operated by the states subject to federal statutory requirements), has issued documents to provide evidentiary data showing that specific hazardous substances or wastes cause specific diseases or illnesses.

Such documents, here referred to as Toxic Substance Documents should be prepared by the agency on the basis of scientific data, including its accumulated information on particular hazardous wastes or substances, collected in connection with the administration of the Clean Air Act (CAA), the Clean Water Act (CWA), Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), Resource Conservation and Recovery Act (RCRA), Toxic Substances Control Act (TOSCA), Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as well as the Occupational Safety and Health Act (OSHA), and on the basis of evidence collected in connection with past or pending cases. The Agency should produce Toxic Substance Documents for some of the best known 20 or 30 hazardous substances on which data are available, including dioxin, chromium, kepone and PCB, and that the Agency could add Toxic Substance Documents from time to time for additional hazardous substances or wastes as their danger becomes more evident, and as data become available. A Toxic Substance Document should be adopted following the publication of the proposed document, together with all supporting data and materials, set forth in full or by reference to published scientific papers, and should be adopted and promulgated following an opportunity for comment.[20] An appropriate rulemaking procedure should be followed to assure the scientific accuracy of the results.

For each hazardous substance or waste, the applicable Toxic Substance Document should set forth the following:

1) Elements of exposure including

a) nature of exposure, such as skin contact, ingestion, inhalation;

b) level of exposure, stated, where appropriate, in terms of a range of exposure levels expressive of the intensity of the exposure measured, when appropriate, by ambient concentration;

c) duration of exposure, expressed, where appropriate, in terms of a range of time periods of exposure.

2) The disease or diseases resulting from exposure, including data on:

a) the etiology of the disease, as related to nature, level and duration of exposure;

b) the symptoms of the disease and the available methods for its diagnosis, including direct observation, clinical and other diagnostic tests;

c) the latency period, if any, of the disease, as related to the nature, level and duration of exposure;

d) the prognosis for the disease, including the anticipated course of the disease, its treatment and its impact or duration in terms of disability, reduction or loss of function, and reduction of life expectancy;

e) other impacts, including mutagenicity, teratogenicity and carcinogenicity in the progeny of the person exposed.

3) Other parameters relating to exposure, etiology and the course and consequences of the disease, including aspects of susceptibility and their variation depending on such factors as age and sex and such other conditions as pregnancy, or disease from causes other than exposure to the hazardous wastes or substances involved.

When a Presumption Document has been prepared for a particular hazardous waste, upon proof of exposure, source and proof of the occurrence of death or disease -- as in the case of the rebuttable presumption of causation --additional rebuttable presumptions shall apply as to matters of exposure, etiology, prognosis, nature and duration of the disease, insofar as these matters are covered in the Toxic Substance Document and insofar as they may be relevant or material to the claim.

Discussion

1. The Recommendations

A majority of the Study Group was in agreement on the need for reliance on rebuttable presumptions on the First Tier, as part of the compensation remedy. The Study Group was in general agreement that the rebuttable presumptions here recommended for the Tier One compensation remedy are inappropriate for the Tier Two plenary tort action. Several members of the Group expressed strong doubts on the desirability of statutory presumptions, and some members suggested that in a plenary action rebuttable presumptions created more evidentiary barriers for the plaintiff than they resolved.

There was considerable discussion and concern whether the Tier One rebuttable presumptions might not be applied, albeit inappropriately, in Tier Two by way of common law developments. Concern was expressed, too, that the use of the rebuttable presumptions in Tier Two might unduly facilitate recovery of judgments in the plenary action, encouraging more claimants to choose Tier Two over Tier One, thereby undercutting the compensation remedy. (*See also* Ninth Recommendation, (d) Proof of Causation and Related Evidentiary Problems; Presumptions, *infra.*)

The Statement of the presumption does not impose on the claimant the obligation to disprove that he smokes or drinks coffee with saccharine, or engages in similar, potentially harmful activities.[21] In support of the broad presumption of responsibility, earlier presumptions may be cited which have been used and upheld in the Workers Compensation and Black Lung Disease area. The general rebuttable "presumptions of compensability" in workers' compensation laws serve the purpose of ruling out claimant's own physical weakness or habits as a contributing factor.[22]

Some members of the Study Group expressed concern over the breadth (and insurability) of the rebuttable presumption, particularly with relation to the broad showing "that the claimant suffered death or the kind of injury or disease which is known to result from such exposure..." While a more restrictive statement of the basis for the presumption could be articulated, a majority of the members of the Study Group concluded that such a narrower statement would give rise to difficulties of interpretation and was not likely to result in any significant change in applying the rule. It was agreed, however, that as soon as an appropriate Toxic Substance Document for the particular substance is adopted, the proof of injuries "known to result from such exposure" would rely on such a document. Some members felt that the rebuttable presumptions recommended are too broad and could lead to over liberality and abuse in their application. In response, it was noted that the broad scope of the rebuttable presumption is workable because this element of the presumption is rebuttable to the same extent as all other elements.

II. Legal Aspects of Reliance on Rebuttable Presumptions

A. Purpose of Presumptions

Courts and legislatures create presumptions to shift the burden of proof for a variety of reasons. Some are created to correct an imbalance resulting from one party's superior access to evidence.[23] Another rationale, usually implied rather than explicitly expressed, is to favor certain parties or claims for social and economic reasons by giving them the benefit of a presumption, usually to restore balance between parties. The disfavored adversary is correspondingly handicapped.[24] Yet another reason is that of practical convenience in the disposition of controversies.[25]

In the creation of presumptions, a reasonable judgment of probabilities is the most important consideration. This plays a strong part in the establishment of presumptions to aid the claimant injured by hazardous wastes to meet his burden of proof in a compensation proceeding. In certain recurring fact situtations, proof of fact A renders inference of fact B so probable that it is sensible and time-saving to presume the truth of fact B until the adversary disproves it.[26]

B. Operation of Presumptions in Civil, Including Administrative Proceedings: The Morgan and Thayer (F.R.E. 301) Approaches

Although the following discussion of rebuttable presumptions is addressed to judicial proceedings (because presumptions have been discussed in the literature primarily in that context), it is equally applicable to administrative proceedings, where such presumptions have been frequently used.[27]

All commentators agree that a presumption has the procedural consequence of shifting the burden of proof, though the weight of that shifted burden will often turn on the relative strength or weakness of the factual evidence on which the presumption is predicated. There are, however, two aspects of the burden of proof; the burden of production and the burden of persuasion. The two major approaches regarding how presumptions should operate - the Morgan approach and the Thayer "bursting bubble" approach adopted in F.R.E. 301 - differ in the manner in which they shift those two aspects of the burden of proof.

The approach favored by Professor Morgan and the Advisory Committee for the Federal Rules of Evidence would shift both the burden of production and the burden of persuasion to the opponent. The presumed fact would have to be found once the basic fact was established, unless the opponent persuaded the fact finder of its non-existence. Therefore, if a presumption existed that persons who were exposed to a particular hazardous waste and contracted a particular disease were presumed to have contracted the disease as a result of exposure, the presumed fact would be considered as established, unless the opponent persuaded the trier of facts of its non-existence.[28] The 1974 Uniform Rules of Evidence and several states have adopted this approach.[29]

The Congress rejected the Morgan approach, however, and instead turned to the Thayer approach when it adopted the Federal Rules of Evidence in 1974. The Thayer or "bursting bubble" approach, embodied in F.R.E. 301, shifts only the burden of production. A presumption is overcome and disappears from a case (thus bursting the bubble) once the opponent of the presumed fact (B) introduces evidence which would support a finding of the non-existence of the presumed fact. The burden for the opponent is not very great; he must merely have "enough evidence before the jury so that a reasonable jury could be convinced that the contrary of the presumed fact is true."[30] This would be a question of law for the judge to decide.[31] In an administrative proceeding, the entire decision would, of course, be that of the hearing officer or administrative judge.

Thus, a presumption also has the effect of forcing the opponent of the presumption to produce enough evidence to avoid a directed verdict,[32] or in an administrative proceeding, the dismissal of the claim. When the presumption disappears, the court may instruct the jury that it may still infer fact B from fact A, but the court cannot instruct the jury that it may presume the existence of fact B from fact A. Under the Thayer approach, in the hypothetical discussed above, if a defendant chemical company offered enough evidence to support a verdict that the plaintiff's injury was not caused by exposure to its hazardous wastes, the court could not instruct the jury to presume that the injury was caused by the exposure. In an administrative claim proceeding for compensation, the hearing officer would himself go through the same process, as would a judge sitting without a jury.

Constitutional Limitations Upon the Creation and Effect of Presumptions in Civil Proceedings

Constitutional limitations on the use of presumptions differ in civil proceedings and in criminal cases. The use of presumptions in criminal prosecutions is not relevant here.

(1) Civil and Administrative Proceedings

Although the Supreme Court in 1929 declared unconstitutional a Georgia statute with a Morgan-type presumption in Western & A.R.R. v. Henderson[33] (presuming liability on the part of the railroad for damages done by the running of locomotives), the Advisory Committee to the Federal Rules of Evidence believed that it was safe to ignore the Henderson case and that no constitutional prohibitions bar the adoption of a Morgan-type presumption.[34] In Henderson, the statute which established the presumption had been struck down on the basis of the "rational connection" test set forth nineteen years earlier in Mobile, J. & K.C.R. Co. v. Turnipseed[35] where a similar presumption, that utilized the Thayer approach was upheld. The Court there stated, "[I]t is only essential that there shall be some rational connection between the fact proved and the ultimate fact presumed, and that the inference of one fact from the other shall not be so unreasonable as to be a purely arbitrary mandate." [36] Henderson and Mobile are very difficult to reconcile; they utilized different approaches in the shifting of burdens, though the Court in Henderson did not distinguish Mobile on that basis. The Advisory Committee suggests that the Henderson outcome may partly be a result of a 1929 view of economic due process.[37]

Whatever the reason, there is little concern that the court today would strike down as unconstitutional an arguably reasonable presumption in a civil case. The Court recently upheld certain provisions of the Black Lung Act creating presumptions that exposure to coal dust is the cause of pneumoconiosis, a respiratory tract ailment.[38] Congress subsequently amended that statute to repeal some of the Black Lung presumptions for policy reasons, leaving others--as well as the rationale of the Supreme Court decision--intact.[39] Still, Weinstein and Berger caution:

> The non-relevance of the "rational connection" test to civil presumptions does not mean that there are no constitutional limits to what a court or legislature may accomplish via a presumption...Greater liability may not be imposed on a defendant by means of a presumption than could otherwise be imposed in consonance with due process and equal protection requirements

> [e.g., a statute providing that all red-headed drivers involved in accidents are prima facie assumed to be negligent would undoubtedly be unconstitutional].[40]

More stringent rules, not relevant here, apply to presumptions in criminal proceedings.[41]

Selected Examples of Use of Presumptions in Administrative Compensation Systems, such as State Workers' Compensation Laws, the Federal Black Lung Act and Proposed Legislation in Earlier Hazardous Waste Proposals

A. Use of Presumptions in State Workers' Compensation Laws

In general, the claimant for workers' compensation has the burden of showing by a preponderance of the evidence that his injury arose out of his employment.[42] Many states, however, use a general rebuttable presumption of compensability to shift the burden of proof to the defendant.[43] Examples of this general presumption can be found in Massachusetts[44] and New York[45] law. A broad presumption of compensability may be important where there is evidence that the claimant's own physical weakness or illness was a contributing factor to the occupational injury or disease.[46] Some federal legislation, for example, the Longshoremen and Harbor Workers' Compensation Act, also includes this broad presumption.[47]

In addition to general presumptions in favor of coverage, some states have enacted more specific presumptions. One of the most common is that an unwitnessed on-site fatal accident is presumed to be work-related.[48] Another is that a work-related disability indefinitely continues to impair the claimant's ability to work[49] unless proven otherwise by a preponderance of the evidence.[50]

Less common is Mississippi's presumption that a heart attack sustained while on the job is work-related.[51] Some states have found that certain occupations often lead to specific diseases, and have based certain rebuttable presumptions on such findings — i.e., that a heart attack sustained by a firefighter,[52] pneumoconiosis suffered by a coal miner[53] and respiratory disability experienced by a steel mill descaler or scarfer[54] are work-related.

B. The Federal Black Lung Act

The Federal Coal Mine Health and Safety Act of 1969[55] is the first federal workers' compensation statute. It provided compensation to coal miners who are totally disabled due to work-related pneumoconiosis. To be eligible for benefits, a claimant must show that he or she is a "miner" or dependent of a miner, who was "totally disabled" by "pneumoconiosis."[56] The burden of proof is upon the claimant to show he and his condition fall within the statutory definitions of these terms.[57] Since pneumoconiosis is defined as "a chronic dust disease of the lung... arising out of coal mine employment",[58] the claimant's burden of proof implicitly includes proof of work-relatedness.

To aid the coal miner in his claim, Congress had originally included five statutory presumptions, four of which were rebuttable and one irrebuttable.[59]

The Black Lung Act was amended in 1981,[60] particularly with respect to the repeal of three out of the five presumptions, which, in the later view of Congress, had led to an excessive number of claims and vastly greater expenditures than had been anticipated.

The 1981 amendment, however, retained the first and basic rebuttable presumption that established the work-relatedness of the pneumoconiosis. A miner who showed more than ten years of exposure and evidence of pneumoconiosis would be presumed to have contracted the disease on the job. The medical data which may be used by the claimant for his showing is defined by the Department of Labor regulation.[61]

The 1981 amendment also left unchanged an irrebuttable presumption. It states that evidence of "complicated" pneumoconiosis conclusively establishes that the miner is now or was at the time of his death totally disabled.[62]

It should be noted, in passing that although Congress did spell out some of the criteria for use of the presumptions, e.g., the necessary duration of exposure, it did find it necessary to refer to medical criteria as set by the International Labor Organization.[63] It also explicitly left to the Secretary of Health, Education and Welfare (now Health and Human Services) the task of prescribing standards for determining whether a miner was totally disabled or died due to pneumoconiosis.[64] These standards would be used whenever a statutory presumption was not applicable.[65]

The effect of these presumptions is to ease the claimant's burden of establishing a causal link among three elements -- his employment, his disease and his disability. There is no single, simple way to show that the pneumoconiosis necessarily arose out of the claimant's employment,[66] and the Congressional adoption of presumptions was an effective way to overcome that difficulty,[67] particularly in view of the significant correlation between pneumoconiosis and exposure to coal dust.[68]

In 1975, the Supreme Court had the opportunity to pass upon the constitutionality of the presumptions set forth in §411(c)(1)-(4) of the Black Lung Act.[69] The Court categorized the Act as "involving matters of economic regulation"[70] and therefore subject to the standard articulated in Mobile, J. and K.C.R. Co. v. Turnipseed:[71]

> That a legislative presumption of one fact from evidence of another may not constitute a denial of due process of law it is only essential that there shall be some rational connection between the fact proved and the ultimate fact presumed, and that the inference of one fact from proof of another shall not be so unreasonable as to be a purely arbitrary mandate.[72]

The Court further states that:

> The process of making the determination of rationality is, by its nature, highly empirical, and in matters not within specialized judicial competence or completely commonplace, significant weight should be accorded the capacity of Congress to amass the stuff of actual experience and cull from it.[73]

To determine if Congress' presumptions in the Black Lung Act were irrational, the Court considered the legislative history and the scientific testimony it contained. The Court concluded:

> Against this scientific background, it was not beyond Congress' authority to refer to exposure factors in establishing a presumption that throws the burden of going forward on the operators.[74]
>
> In its "rough accommodations" (citation omitted) Congress was surely entitled to select duration of employment, to the exclusion of the degree of dust exposure and other relevant factors, as signaling the point at which the operators must come forward with evidence of the cause of pneumoconiosis or death, as the case may be. We certainly cannot say that the presumptions, by excluding other relevant factors, operate in a "purely arbitrary" manner (citation omitted).[75]

C. The Brodhead Bill

The Study Group rejected the presumptions approach of ~~the~~ Brodhead bill as overly broad and inadequate in supporting the reasonableness of the presumptions proposed.

The Brodhead bill[76] was a slightly modified version of a model act proposed by Sobel in 1977[77] to establish a comprehensive administrative system for the compensation of victims of toxic substance pollution. Within this proposed system, a variety of presumptions would have been used to ease the claimant's burden of showing a causal connection between his injury or disease and the acts of a specific manufacturer. These are presented in §14, which states:

> (a) CREATION OF A REBUTTABLE PRESUMPTION
> In any proceeding for determining the causation of disease or other personal injury arising from toxic substance pollution pursuant to this Act, the rebuttable presumptions of subsection (b) arise whenever there is a showing by any party -- or by the [Administrative Board for Compensation of Victims of Toxic Substance Pollution] that any manufacturer is currently or has been engaging in any toxic substance pollution and that such pollution -
> (1) travelled through an indicated pathway from the point of manufacture to the injured or diseased person; and
> (2) resulted in the etiology of the injury or disease claimed under §13.

> Showings submitted to the ABC shall contain reasonable proof, as may be further defined by the ABC in its regulations, of the aforementioned factors necessary to give rise to the rebuttable presumptions of this section.
>
> (b) REBUTTABLE PRESUMPTIONS
> A showing under subsection (a) shall give rise to the rebuttable presumption that-
> (1) the manufacturer did produce the toxic substance in question at the time and in the manner necessary to have caused the pollution;
> (2) the toxic substance was distributed through the pathway indicated by the showing;
> (3) the toxic substance did result in the etiology attributed to the toxic substance pollution by the showing;
> (4) the manufacturer was solely responsible for the toxic substance pollution in question; and
> (5) the toxic substance by itself, not a mixture or synergistically formed toxic substance, comprised the polluting and injury-causing or disease-causing substance.

The effect of §14 is merely to shift the burden of proof on these five issues to the manufacturer.[78] It is interesting to note that the claimant would have to make some "showing" under §14a that the toxic substance "resulted" in the etiology (i.e., origin) of his disease. It is not clear how much proof would be necessary to make this showing. Having met this burden, the claimant would then be entitled to a rebuttable presumption that "the toxic substance did result in the etiology" attributed to it in the §14a showing.[79] The manufacturer then would have an opportunity to rebut this presumption if a preponderance of the evidence refutes this causal link.

The effect of the Sobel-Brodhead formulation would be to make the first compensation claim for each disease or toxic injury a "test case". Once a causal link has been established, by adjudication of a claim (or by the initiative of the ABC through its investigative arm, if in fact this occurs), the disease would be classified as a "designated disease" pursuant to §15. There are many procedural advantages to contracting a "designated disease".

First, a claimant who complains of a "designated disease" could be certified as a "victim" under §16 of the Act. He would have to show he has been exposed to a toxic substance known to result in a designated disease, and identify the manufacturer(s) responsible. To aid him in this showing, the presumptions listed in §14(b) may be used. They are triggered, however, by a somewhat looser prima facie case, as set out in the "nexus requirements" of §14(d), which would consist merely of showing opportunity for exposure.[80] Thus, the task of showing an "indicated pathway" by which exposure was possible is completely removed from the claimant. The proposal would also eliminate any need for original proof of causality. Finally, while the presumptions of §14(b) would still be rebuttable when used by a victim of a designated disease, it is probable that the manufacturer would find it more difficult to amass evidence refuting the causal link between the toxic substance, the manner and duration of exposure, and the disease experienced by the claimant.

In addition to the overly broad character of the Brodhead bill presumptions, the Study Group rejected the "designated disease" approach because it makes the future course of the law--and of applicable presumptions--depend on the "first case" and on the manner in which it is presented. Reliance on Toxic Substance Documents, based on proper scientific information and adopted in properly contested administrative proceedings, appeared to the Study Group to offer a more substantial basis for formulating rebuttable presumptions that meet the test of reasonableness.

Fifth Recommendation: Tier One -- Compensation Awards; Collateral Sources

The Study Group recommends that the compensation award provide full recovery for all of a claimant's reasonable medical costs, and an amount for loss of earnings due to exposure related disease or disability limited to two-thirds of the full regular earnings up to a monthly limit, to be set by Congress, which, under current economic conditions should not exceed $2,000 for such two-thirds, for as long as the disability continues.[81] It is further recommended that the limit be regularly adjusted to reflect changes in the cost of living. In making the compensation awards, the majority of the Study Group recommended that collateral sources of a public nature shall be considered and the compensation award shall be reduced by amounts to which the claimant may be entitled under public programs such as Medicare, Medicaid, and others,[82] and that the appropriate public source be reimbursed out of the compensation award. A minority of members of the Group recommended that all collateral sources, whether public or private, be considered and treated in this fashion.

The Study Group further recommends the authorization of the payment of reasonable death benefits to dependents in an amount related to the decedent's regular earnings and normal life expectancy and the degree of dependency of claimants.

The Study Group also recommends that the claimant remain entitled to compensation for injury or disease discovered after the conclusion of the proceeding or during and after the period of the compensation award, in view of the long latency of some diseases resulting from hazardous waste exposure, and the probability of the later emergence of more serious consequences than the condition which gave rise to the earlier award.

Discussion

The compensation awards recommended have some clear similarities to worker's compensation awards, in that full medical coverage is to be provided, and in that compensation for disease or disability — as well as death benefits for surviving dependents — are related to regular earnings, though not limited to wages and salaries. Another similarity is the absence of damages for pain and suffering or any punitive or exemplary awards. But there are also significant differences, which are explainable by the differences in the relationship of worker and employer, and owner or manager of a waste disposal facility and the victim of injuries from exposure. The worker-employee relationship results in making the expectation of worker's compensation an incident of the employment relationship. Moreover, the costs of the system are clearly incorporated in the costs of production of goods and services. A logical consequence of the work-relatedness of the workers' compensation system is to regard the job-related injury or disease as part of the consequence of employment, compensable regardless of fault, and compensable in an amount measured by lost wages.[83]

The employment relationship is clearly not present where the person who has suffered injury from exposure to hazardous wastes is not an employee. Thus, the analogy to the workers' compensation system is largely one of convenience. While the awards of compensation in both systems provide full medical costs, compensation for disability is not related to wages from a particular employer, but to loss of earnings from all sources, of whatever kind. The recommended limits on awards are somewhat more generous than the usual workers' compensation awards, for two reasons. First, there is widespread concern that workers' compensation has been outpaced by inflation and is not entirely adequate to meet the need for adequate support.[84] Second, the hazardous waste compensation remedy, which is not related to employment, should offer a somewhat more favorable tradeoff between the right to bring a tort action for unlimited damages and the option of a more certain, but a more limited compensation remedy.

There was general agreement in the Study Group that medical expenses should be fully compensated. This differs from the limits that would have been imposed on such expenses under S. 1480,[85] one of the bills before Congress when CERCLA was passed. Medical expenses were viewed as readily ascertainable and as an essential and basic part of any compensation award. Further, the Study Group believes that consideration should be given to the problem of compensating injuries, such as genetic damage, that are not cognizable under present tort law.

The formula for compensation for loss of earnings reflects the Study Group's intention to provide an adequate amount of support to victims. Two-thirds of regular earnings would provide roughly the same amount of support as regular earnings after payment of taxes, since compensation awards are not taxable. The limit of $2,000 per month has been suggested, though not firmly recommended.[86] It reflects an adequate measure of compensation for a claimant with an annual income of $36,000 which in the case of a breadwinner for a family of four, would take in a substantial part of the middle class population, though it would not include high earners or persons not within the wage earner category, who would normally carry health and accident insurance for their own protection.

There were different points of view expressed on the subject of "relating" the upper limit on compensation awards to the cost of living index. The Study Group agreed on the desirability of compensation awards that realistically reflected the economic situation, but some members of the Group objected to indexing, because in their view pegging the maximum of the award to the cost of living index would itself contribute to inflationary pressures, contrary to current national policy. Members of the Group who were in favor of indexing were less persuaded that indexing would have a substantial inflationary effect, and more strongly persuaded of the need to keep compensation awards in line with current economic realities.

The Study Group recommendation relating to collateral sources follows currently accepted approaches to reduce the public cost of the rendition of medical and health services, to avoid double payments for the same service. There is no argument generally on the reduction of awards by collateral receipts where public sources of payment such as Medicare or Medicaid are involved. There is also a question whether the rule relating to collateral sources should apply to the proceeds of insurance that has been funded independently by the claimant. The issue is not only a question of double payment, but also of the impact on future insurability and of putting at a disadvantage the more provident claimant. The decision to reduce compensation by the amount of collateral receipts from public sources reflects a reasonable middle ground, so as not to disadvantage public resources while granting the claimant the advantage of his own providence.[87] A similar rule logically applies to death benefits as well. The majority of the members of the Study Group also supported the middle ground in the belief that reducing the compensation award by the full amount of all collateral receipts, public and private, would persuade many claimants to seek recovery in a plenary action in Tier Two, rather than to rely on the Tier One compensation remedy.

The decision to permit the reopening of the compensation proceeding at any later time reflects the awareness of the Study Group that the diseases resulting from exposure to hazardous wastes not only have a long latency, but may also have a variety of effects, some of which may emerge earlier and some later.[88] Thus, a person who has received a compensation award for a troublesome but temporary skin condition should not be barred from raising additional claims later, if other more serious consequences, such as cancer or central nervous system disorders causally related to the same exposure subsequently emerge.

At such later time, the claimant may reopen the compensation proceeding at Tier One and he may thereafter decide to bring a plenary tort action at Tier Two, subject to the same conditions and rules as apply to access from Tier One to Tier Two under the First Recommendation. If the claimant decides to proceed by way of a plenary court action, no collateral estoppel should arise as to any issue decided in the earlier compensation proceeding. [See Discussion, Second Recommendation].

Sixth Recommendation: Tier One -- Administration of Compensation Remedy; Costs of Administration

The Study Group recommends that the administrative compensation remedy established pursuant to federal law be administered in each state by an appropriate state agency pursuant to federal requirements.[89]

Federal legislation is recommended to encourage the states to participate in the program. Inducement to state participation might include funding for administrative and technical assistance or other federal grants to relieve the states of some or all of the financial burden of participation. The federal legislation that would provide for state participation would also have to provide for the federal agency to assume the task of administering the program in states that will not participate. Federal legislation, such as the NPDES program under the Clean Water Act, or the permit program for hazardous waste sites under subtitle C of RCRA, may provide a general pattern.

The federal agency in charge of the program -- which might be EPA, the Social Security Administration, or other agency with either environmental or social insurance obligations -- would be responsible to see that the state agencies of the states that participate meet the requirements of the federal law, and that the requirements of the federal law are carried out.

The federal supervisory agency should have adequate but limited power to carry out its functions. The aim of the law should not be the creation of a substantial new federal bureaucracy, but rather an agency adequate to see that the law is carried out, leaving its day-to-day implementation to the delegated state agencies. It is recommended that the chief directions and guidelines for the operation of the state agencies be contained in the law itself, and that the federal agency's rulemaking powers be limited, but not so limited as to deprive it of essential operational flexibility. The federal agency should also be granted enforcement powers sufficient to assure that the state compensation systems established pursuant to federal law provide the full measure of remedies established -- i.e., an adequate system for the bringing and determination of claims in accordance with federal law, and for the review of such determinations, an effective system for the payment of compensation awards, and an effective system for the assertion of subrogation claims by the compensation agency against the owner or manager of the disposal site or other party responsible for causing the condition that caused the damage or injury, where subrogation is authorized.

On the state level, the agency should have adequate powers to accept and carry out the administration of the compensation system. The federal legislation should leave it to the state's discretion whether to create a new compensation agency, or whether to authorize a suitable existing agency to assume the function.[90] Existing workers' compensation boards, other agencies versed in insurance problems, or agencies involved in environmental controls or public health management may be appropriate for the task. The only requirement, however, that should be set forth in the legislation is the agency's capacity to comply with the federal law in an effective manner, in the following particulars:

(a) An administrative structure competent to establish and maintain a system of claims management from the filing of covered claims to the determination and distribution of awards.

(b) Sufficient qualified medical and scientific personnel to make determinations relating to the extent and duration of disease and injury, and relating to the extent of necessary and reasonable medical costs to be included in awards.

(c) Sufficient qualified personnel to make determinations relating to the recognition of covered claims, and to make the scientific and legal determination necessary to establish the causal link between the exposure and the disease.

(d) Sufficient claims management and legal experience to deal effectively with subrogation claims by the state compensation agency against owners/managers or the transporters responsible for the claimant's exposure to hazardous wastes.

(e) Adequate powers to carry out the usual and necessary housekeeping functions relating to notices, hearings, and proceedings, production of witnesses and documents, maintenance of dockets, and including such functions as the preparation, dissemination and publication of compensation awards.[91]

The Study Group recommends that the federal government contribute eighty percent of the cost of administration of the state compensation agencies, including legal expenses, and that the states contribute the remaining twenty percent.[92]

Discussion

The Study Group viewed the compensation remedy as a federally created remedy subject to federal law, to be administered in the main by state agencies. The major function of the federal agency would be to see that compensation agencies established by the state to administer the program were adequately authorized, equipped, and staffed to do so, and to monitor their performance. The federal agency should not have broad rulemaking and standard setting powers beyond the power necessary to exercise adequate oversight. The regular day-to-day operation of the compensation system would be in the hands of the state agency without direct federal participation or intervention in the management of claims. The federal agency should, however, be in a position to use appropriate administrative measures in the event of a general failure of compliance by a state agency. Failure of the state agency to comply with the law in particular compensation claims proceedings should be managed through the judicial review process.

The Study Group takes the position that the compensation remedy ought to be a uniform program, and the claimants' compensation award ought not to depend on the state or location where the exposure occurred. The essential uniformity of the remedy, nationwide, should be maintained by the federal agency, and where appropriate, through judicial review. The effort to encourage national uniformity recognizes the national scope of the chemical industry, as well as the national source of funding from which the compensation awards will be paid.[93]

The Study Group believes that both the federal and the state agency needs some flexibility and some limited rulemaking authority to provide for a workable system. Some of the Study Group members share the concern that the creation of a large bureaucracy with broad rulemaking powers is undesirable -- and would, moreover, run counter to some current trends in administrative law. The resulting proposal thus reflects a compromise between an approach that would have given the federal agency broader, more general administrative powers, and an approach that would have denied the federal agency rulemaking power altogether.

Seventh Recommendation: Tier One -- Compensation Awards: Payment from Hazardous Waste Compensation Fund; Recovery from Responsible Parties for Future Exposures by Subrogation

The Study Group recommends the establishment of a federal fund to be applied to the payment of compensation awards pursuant to the administrative compensation Tier One remedy. The fund. analogous to the Superfund created by CERCLA, should be established by contributions from, or taxes on, the production of hazardous or toxic chemicals, and crude oil, and by a tax on the deposit of hazardous wastes. Further study is recommended to establish whether the class of industries taxed under CERCLA should be expended. In general, the establishment of the hazardous waste compensation fund should follow the pattern of the present law.

The Study Group recommends that the payment of compensation awards be independent of the availability of a responsible party against which a claim for compensation or a subrogation claim for compensation can be made.

The majority of the Study Group[94] recommends that the Compensation fund should pay all proven claims for compensation for injuries and illness arising out of exposure to hazardous substances or wastes disposed of, transported, or spilled *prior* to the adoption of this proposal, or those resulting from exposure to such wastes at an "orphan site" for which no responsible owner can be found. The compensation fund should not be authorized to assert any claims for contribution or subrogation from allegedly responsible parties in such cases.

In cases of claims of compensation for injuries and illnesses arising out of exposure to hazardous substances or wastes disposed of, transported or spilled after the adoption of this proposal, the allegedly responsible owner/operator of the site, the transporter or the generator of hazardous substances or wastes should receive notice of the claim for compensation, but the compensation agency should proceed to determine the claim without his participation in the proceeding. If the compensation agency makes an award and pays it out of the compensation fund, it should then seek to replenish the fund by subsequently asserting a subrogation claim against the allegedly responsible party.

As state compensation agencies make awards payable out of the compensation fund, monies should be transferred from the federal fund to the state to meet the need.

The Study Group recommends that the "discovery rule" apply to all claims and that claims not be time-barred by reason of the passage of time from exposure or injury to the discovery of the illness or injury on which the claim is based, and regardless of whether the responsible party knew, or should have known of the hazardous condition, or of the hazardous nature of the wastes. The majority of the Study Group recommends that any agency's claim for subrogation for post-adoption claims of exposure be coextensive in time with the claim for compensation -- i.e., that both claims be regarded as accruing at the time of the discovery of the disease or injury and its cause. The claim for compensation should not require proof that the owner/manager of a site, transporter or generator knew or should have known of the hazard. The majority of the Study Group further recommends that the claim for subrogation for post-adoption exposure also should not require such proof, and should be based on liability without fault. A minority of the Group believes that subrogation be based on proof that the operator or owner did not meet the industry standard of care.

All amounts recovered by subrogation claims should be paid back into the hazardous waste compensation fund.

If the hazardous waste compensation fund becomes depleted, the Congress should consider whether to increase the tax on the industries that contributed to the establishment of the fund, or whether the fund should be enhanced by contributions from general revenues.

Discussion

The recommendation for the establishment of a Hazardous Waste Compensation Fund follows closely the provisions of CERCLA which provide for the establishment of the Hazardous Substance Response Fund (§221) and the Post Closure Liability Fund (§232). The Hazardous Waste Compensation Fund would be established by a tax on industry following the pattern set by §§221 and 232 of CERCLA, providing for a tax on certain chemicals and on hazardous wastes respectively. The possible broadening of the class of industries taxed under CERCLA was also suggested. By its recommendation the Study Group recognizes that the compensation of adverse health effects is as deserving of expenditures for remedial measures as are clean-up costs and environmental remedial measures for which Congress has previously made provision.

Some members of the Study Group expressed concern over the additional burdens this tax might place on industry, particularly with respect to international competitive positions and suggest that the creation of a fund out of general revenues might be preferable, in the interest of preserving the competitive position of the American chemical industry, in light of its essential contribution to the economy of the Nation. As a general principle, the economic cost of injury should be carried by the industry or enterprise that creates them, because efforts to reduce the cost will result in greater care and more safety and protection of the public. This general principle may have to yield in the case of an industry whose international competitive position may be of great significance to the balance of trade and to the welfare of the country. Moreover, it is clear that ultimately the general public bears the cost regardless of the choice, either in paying a higher price for the products of the chemical industry or in the form of higher taxes.

In the resolution of this issue, the majority of the Study Group again followed the Congressional lead in CERCLA in placing the burden on industry in the first instance, possibly with an expansion of the class to be taxed, but leaving to later Congressional determination the question of reliance on general appropriations, if the tax on industry is insufficient and the fund is depleted.

The recommendation seeks to impose liability prospectively for injuries that occur from exposure to hazardous wastes and to spills of hazardous substances disposed of or spilled after the adoption of the Study Group recommendations. Injuries for exposures to hazardous wastes which were disposed of prior to adoption of the recommendation would be compensated in the same manner out of the compensation fund, but no effort would be made to secure reimbursement of the award, directly or by subrogation, from responsible parties. Thus, from the point of view of the claimant, there is no distinction between earlier and later exposures, because they are subject to compensation, whether pre- or post-adoption. The difference between the treatment of pre- and post-adoption exposure lies in the assertion of responsibility, whether directly or by subrogation, against the allegedly responsible generator, transporter, or disposer of hazardous wastes. The Study Group arrived at its recommendation relating to exposure to wastes disposed of pre- and post-adoption after lengthy and detailed consideration of the issues of "retroactivity" which gave difficulties to some members of the Study Group. [For discussion of legal issues involved see Appendix L]. The recommendation resolves such issues because it imposes liability for compensation awards, directly or by subrogation, only on generators, transporters, or disposers of wastes if their activities which gave rise to exposure occurred after the adoption of the proposal. In addition to avoiding issues of retroactivity, the prospective nature of the proposed liability should increase the likelihood that generators, transporters, or disposers will obtain insurance coverage for the risk.

The Study Group discussed at length whether the compensation hearing should be a contested proceeding or whether the allegedly responsible party should merely have notice but not the right to participate. In the interest of speed of disposition of the claim, the majority of the Group decided against requiring the state to provide for a right of the party allegedly responsible to participate, leaving it to the compensation agency to manage the proof of the claim, rather than to an adversary proceeding.

Other issues discussed included the inducement for the agency to pursue subrogation, since it has no direct interest other than the more remote interest of replenishing the compensation fund. The concern was expressed that in order to collect in a subrogation proceeding, the state agency might bring pressure to bear on a claimant to pursue the Tier Two remedy, in which case the agency would either get reimbursed out of the award of damages, or else could try to join in the action to bring the subrogation claim. The Study Group was generally agreed that compensation agencies should not use Tier Two actions by the claimant as a method of obtaining payment of the subrogation claim. The Group was divided, however, on ways of preventing such a course, and on whether efforts to prevent it would not be unduly troublesome in creating procedural complexities. The Study Group was in general agreement, however, that no collateral estoppel of any kind should arise out of the compensation proceeding.

Eighth Recommendation: Tier One -- Judicial Review of Compensation Awards

The Study Group recommends that the grant or denial of a compensation award or the amount and adequacy of the award be subject to judicial review in the appropriate state courts, in the manner in which the determination of state workers' compensation awards and other similar administrative determinations are normally reviewable.

If the claimant or the respondent believes at the conclusion of the state review process that a misinterpretation of the guidelines set by the federal agency in charge of the program resulted in the grant or denial, or in the inadequacy of the award, then the claimant or the respondent should be entitled to a review of the issue by the federal agency.

If upon an appeal the federal agency affirms the determination of the state agency, its affirmance on the issue of compliance with the guidelines shall be final. If the federal agency reaches a result at variance with that reached by the state, the determination of the federal agency should then be subject to judicial review in the appropriate federal Court of Appeals for the Circuit in which the state is located. Judicial review by the Circuit Court of Appeals should be governed by §706 of the Administrative Procedure Act.

Discussion

The provision of judicial review for determinations of the compensation agency is necessary not only to meet the requirements of justice and constitutional law, but also to advance the purposes of uniformity for a national compensation system. Since compensation agencies will operate on the state level, it is appropriate that judicial review of the denial or adequacy of compensation awards be held at the state court level in the first instance, in the manner of similar judicial review of state administrative action. In the interest of national uniformity in dealing with similar issues in different parts of the country, questions relating to the interpretation of the federal agency guidelines should be reviewable in the first instance by the agency itself, and then, where the federal and state determinations differ, by the appropriate federal Court of Appeals. Such a narrow review of compliance with federal guidelines would advance the national goals of the program without undue interference with state management of claims. The Study Group was divided on the issue of granting the federal agency the right to seek review on its own motion of a failure to comply with its guidelines.

Judicial review under §706 of the Administrative Procedure Act is narrow in scope. Its essential factors are the review of the legal sufficiency of the determination, and the application of the "arbitrary, capricious...abuse of discretion" standard to the administrative determination as a whole.[95] As currently interpreted, this means that the compensation award would be upheld if it took into account all relevant facts and factors and did not reflect any clear errors of judgment.[96]

Ninth Recommendation: Tier Two -- Plenary State Court Actions; Removal of Obstacles and Barriers to Effective Court Actions for Personal Injuries Resulting from Exposure to Hazardous Wastes

The Study Group recommends that the several states enhance and develop common law and statutory remedies, and that they remove unreasonable procedural and other barriers to recovery in court action for personal injuries resulting from exposure to hazardous waste, including rules relating to the time of accrual of actions, joinder of parties, apportionment and proof of causation.

(a) Statutes of Limitations

A small number of states still follow the so-called traditional rule that the cause of action accrues from the time of exposure. Another small number of states has not as yet clearly adopted either the traditional or the discovery rule. Since many of the hazardous wastes are carcinogens, mutagens, teratogens or substances with delayed impact on different organs or the central nervous system, the latency period for the appearance of injury or disease is likely to be extended for thirty years or more. In states that have not clearly adopted the discovery rule (i.e., that the cause of action accrues from the time the plaintiff discovered or reasonably should have discovered the injury or disease) the cause of action will usually be time barred when the plaintiff discovers his hurt. The Study Group recommends that all states that have not already done so, clearly adopt the rule that an action accrues when the plaintiff discovers or should have discovered the injury or disease and its cause. The Recommendation is intended also to cover the repeal of the statutes of repose which, in a number of states have the same effect as some statutes of limitation in barring plaintiff's claim before he knows that he has one.

(b) Parties Plaintiff

The complex nature of hazardous waste litigation makes it important that the combination of a number of plaintiffs in one lawsuit be encouraged, both for the sake of the judicial system and for the sake of the litigants. Exposure to hazardous wastes may not be limited to a single person but may often involve a substantial number of persons. The evidentiary problems in hazardous waste cases are substantial and involve sophisticated expert testimony of a medical and scientific nature, relating both to causation and nature of injury. Such testimony is not only very time-consuming, but also very expensive. The combination of a number of plaintiffs in a single case saves time and avoids inevitable trial delays resulting from large numbers of cases that would otherwise enter the judicial system one at a time. From the plaintiff's point of view, the need to combine with others who are similarly situated is essential in all but the very largest individual claims, because very few lawsuits would justify the massive expenditures for expert witnesses and scientific and medical testimony that are needed. Thus, a denial of plaintiff combinations in the bringing of such lawsuits in effect denies a plaintiff the opportunity to bring the action at all, unless his claim is exceptionally large.

To facilitate easier plaintiff combinations, the Study Group recommends that states adopt liberal joinder rules, so as to allow complex issues of causation and liability to be tried together, leaving such issues as individual damages to separate trials, if necessary.

(c) Parties Defendant; Apportionment

The selection of proper parties defendant in a hazardous waste case is difficult because of the long latency period of many hazardous waste injuries and diseases, and because of the number and variety of hazardous substances or wastes that may be implicated in any case of injury resulting from exposure. When carcinogenic, mutagenic and teratogenic effect may not manifest themselves until 20 or 30 years later, the ownership of the disposal site, or of the transportation facility involved in the initial exposure may have changed several times; there may be questions of the time of the initial exposure; there may be questions of the contributory impact of intervening exposures; and there may be a question as to which hazardous waste and from which source is responsible for the particular injury. It is impossible here, as in other instances of environmental pollution, to attribute and allocate responsibilities and liabilities with specificity. Substantive and procedural rules that require such specific allocation will defeat the plaintiff's claim.

The Study Group therefore recommends that the states review and, where appropriate, revise their substantive and procedural rules so as to hold contributors to injury or damage jointly and severally liable, under the theory of concert of action or other approaches that place the burden of allocating separate contributions to the injury among a number of defendants, once there has been proof that a defendant has contributed to the risk or to the injury. However, there should be a *de minimis* exception--the so-called "one drum defense" to provide the necessary element of fairness to joint and several liability. The Study Group also recommends that states examine alternative approaches to apportionment, such as the "channelling" approach which channels responsibility to a designated party; this approach is now in effect under the Price-Anderson Act and in third party nuclear liability in western Europe.

The Study Group also recommends that the substantive law relating to a landowner's obligation be clarified so that a former owner may not relieve himself of the liability for injuries caused by hazardous waste nuisances or dangerous conditions on his land by selling the property, and so that a new owner who, at the time of acquisition, knew or had reason to know of the dangerous condition may not relieve himself of liability for the maintenance of the nuisance or hazard by asserting the responsibility of the former owner for its creation.

Liability for damages for personal injury resulting from exposure to hazardous substances or wastes should not extend to the owner who shows that such substances or wastes were deposited on his land without his knowledge or consent. The Study Group recognizes, of course, that the owner's obligation to abate a nuisance or to remove a condition which threatens the public health is separate from the liability for damages for personal injury.

To ease procedural problems affecting the apportionment of responsibility for an injury, the Study Group recommends that the States adopt liberal joinder rules for defendants as well as for plaintiffs.

(d) Proof of Causation and Related Evidentiary Problems

Regardless of the cause of action -- whether trespass, nuisance, negligence, riparian rights, strict liability or any other -- the establishment of the causal connection between the exposure to hazardous wastes and the injury or disease suffered remains a difficult evidentiary problem because of long latency periods and the variety of exposures from one or more disposal sites or other potential causes of injury or disease. The relationship of particular pollutants to particular diseases is not always fully documented, and long latency periods (with other intervening exposures a distinct likelihood) for cancer, neurological and other injuries, cause additional problems. Mutagenic and teratogenic consequences will not show until the next generation and may give rise to special problems.

A number of evidentiary presumptions have been recommended by the Study Group to operate in the "Tier One" hazardous waste compensation remedy proposal, and the Study Group expresses the view that the presumptions in plenary tort actions in Tier Two be left to the development of the law in the several states.

(e) Strict Liability

The Study Group recommends that the several states develop and enhance causes of action that apply strict liability to the generation, transportation and disposal of hazardous wastes. Formulations of strict liability that balance the hazard of the activity against its utility and its appropriateness to the locale import considerations of negligence that entail significant barriers to the recovery of damages for injuries from exposure to hazardous wastes. To remove these barriers, the application of a theory of strict liability is needed that focuses on the nature of the hazardous waste activity itself, and on the magnitude of the risk.

Discussion

(a) Statutes of Limitation

The Study Group agreed not only that the discovery rule should be applicable, but also in the view that a formulation of the discovery rule be applied that provides that an action accrues when the plaintiff knows, or should know, of the injury or illness, and also of its cause.[97]

(b) Parties Plaintiff

The Study Group agreed that the procedural devices to allow plaintiffs to join forces in proving highly technical and complex evidentiary points are desirable, both to save unnecessary expenses, but also to avoid wasteful duplication of effort in the repetitive presentation of items of technical and scientific evidence. In the view of the majority of the Study group, this could best be accomplished by liberal joinder rules. The majority of the Group expressed the view that the use of class actions for mass torts is not appropriate, and knowledge of the action might be bound by its outcome, and in part because of highly individual factors affecting personal injuries. A smaller number of members of the Study Group were of the opinion that class action approaches could be usefully adapted to mass tort actions.[98]

(c) Parties Defendant, Apportionment of Liability

The Study Group agreed that joint and several liability was a useful and necessary rule to allow recovery by a plaintiff who had a valid claim, but who could not pinpoint the precise contribution to his injury by each of several defendants. Joint and several liability and the adoption of an expanded approach to concert of action would allow the allocation of liabilities among a group of defendants by the defendants themselves. To avoid the situation of casting the entire liability on the defendant with a deep pocket but minimal responsibility, the adoption of the so-called "one-drum defense" is recommended. The Study Group reviewed the recent theories of market share liability and enterprise liability, but concluded that "market share" was probably inappropriate in the hazardous substance or waste situation, because it would be too difficult to divide and ascertain the shares of substances from different sources, unlike the situation of the market for a particular drug (DES) where the theory has been applied in the past. The "enterprise" approach, which would cast liability on the industry as a whole, is as yet too novel and untried to be recommended.[99]

The Study Group was made aware of serious problems of the insurance industry when strict liability is imposed on numerous firms at the same time for the same injury, especially when it may be difficult to link the cause of injury to any particular policyholder, time period or industrial activity. The Group considered the concept of "channelling", namely the possibility of reforming apportionment rules to provide that a single, identifiable hazardous waste handler would be held responsible for each type of waste accident.[100]

The Convention on Third Party Liability in the Field of Nuclear Energy (Paris Convention), signed July 29, 1960, has operated the channelling concept at an international level successfully for almost a quarter of a century. This system, involving (1) strict but exclusive liability, (2) limitation of liability, (3) compulsory financial security and (4) a government-financed excess liability fund is worthy of serious consideration.[101] This system is analogous but not identical to the Price-Anderson scheme. Commentators have been suggesting channelling approaches in connection with other high-risk activities. If such an apportionment rule is suitable for use in the regulatory and financial responsibility system developing under RCRA, it may result in a higher percentage or premiums (or "loss dollars") going to injured persons.[102]

The Recommendation largely accepts existing common law approaches to the problem of liabilities of successive landowners, and suggests that liberal joinder of defendants may prove as useful as liberal joinder of plaintiffs.

(d) Rejection of Tier One Presumptions; Use of Toxic Substance Documents

The Study Group had extended discussions on the question of the applicability of the "Tier One" presumptions on "Tier Two". Since the compensation remedy is to be a speedy remedy to provide limited compensation to victims, the generous use of such presumptions to advance the victims' claims and to reduce the transaction costs of managing numerous claims is warranted, particularly because it is anticipated that the bulk of claimants will rely on the Tier One compensation system. There is an advantage in maintaining ease of proof in the compensation system, because it is likely that with increasing claim experience, its costs will be more readily calculable and predictable than the Tier Two tort remedy with its potential, as other tort claim experience has shown, for very large verdicts.

Some members of the Study Group expressed the belief that to extend the rebuttable presumptions to the plenary tort remedy would encourage greater reliance on that remedy, at substantial additional cost. Some members also believed that it was appropriate in what are likely to be very substantial tort actions for the plaintiff to meet the full burden of proof including the necessary scientific and medical evidence necessary to establish causation. On the other hand, the point of view was also expressed that the Tier One presumptions would not be permissible in most states in the trial of an action for personal injuries, so that a Study Group recommendation on that issue would have relatively little weight. However, some members feared that sooner or later, the common law would follow the statute so that the presumptions applicable to the compensation remedy would ultimately be applied in tort actions as well. It was also said that if the presumptions were appropriate -- because of their validity -- in the compensation proceedings, it would not be proper to attempt to bar their use where similarly appropriate in personal injury action in the courts.[103]

The Study Group concluded that the Tier One rebuttable presumptions were not appropriate for use on Tier Two. However, using common law evidentiary approaches, courts might be free to consider the "Toxic Substance Documents" in the manner in which treatises and other authoritative works are used. Some members of the Study Group were concerned that Toxic Substance Documents might be used to establish a required minimum standard of proof. The Study Group was in general agreement in its discussion that such an implication was not intended.

(e) Strict Liability

The Study Group agreed that hazardous waste activities may be characterized as activities which entail serious risks, even if carried out with reasonable care. A person who conducts such an activity should be held strictly liable for the consequences.

It has been noted that formulations of strict liability that emphasize the locale of such activities, or that balance its hazard and its utility end up by implicitly applying a negligence standard which creates a significant barrier to recovery. Although there was considerable division on the issue, the majority of the Study Group recommended that the courts apply a theory of strict liability that would focus on the hazardous nature of the activity itself, particularly in view of the potentially farreaching and long-lasting impact of hazardous wastes on health and the environment.[104]

Tenth Recommendation: Damage to Private Property and Environmental Interests

The Study Group recommends that environmental damage to private property, including economic injury, resulting from exposure to hazardous wastes and hazardous waste activities be the subject of plenary action under state law in the state courts. The Study Group further recommends that in dealing with such damage actions, the states adopt the procedural and substantive changes and improvements of existing common law remedies contained in the Ninth Recommendation, as may be appropriate, adding to its Recommendation that in the case of actions for damage to private property, class actions may well be suitable.

The Study Group recommends that the states review the availability of "Superfund" to provide for the costs of remedial actions to deal with the environmental impacts of hazardous wastes which affect many private properties and their owners in areas of the state that have suffered contamination of subsurface waters or of the soil. The Study Group also recommends that the states consider the commencement of *parens patriae* claims against *Superfund* on behalf of their affected citizens whose property has been affected by such contamination, under CERCLA §111(c) which provides for use of Superfund for remedial action in the case of such public environmental assets as the waters and subsurface waters of the state.

The Study Group also recommends that the state consider the adoption of laws and public programs to provide remedial measures in situations that are not being addressed in the implementation of the Superfund, and where the provision of public programs may be more effective and socially useful than the recovery of damages by individual owners. This consideration would be aided significantly if Congress were to clarify its intent with respect to preemption of state tax sources under CERCLA §114. The practical need for such independent State programs would be lessened if the federal government was providing the States with available funds in the Superfund to undertake cleanups, as we believe Congress intended when it passed that Act.

Discussion

Environmental Damage to Private Property; In General

The Tenth Recommendation contains two interrelated parts. The first part addresses the role of private damage actions for damage to private property and environmental interests. The second part deals with remedial measures that are, or may be, available under government programs where a number of owners of private property in an area of the state have been affected in similar ways, whose damages can be relieved more effectively by a government program than by individual damage actions.

Actions for Damages to Private Property

The Study Group recognizes the farreaching impact of hazardous wastes on environmental aspects of private property and on economic interest, but recommends fewer changes than with respect to personal injury because the problems of personal injury and disease are more immediate and in need of more rapid resolution than issues of property damage or loss. Moreover, although many legal issues involved in claims for property damage are as complex as the issues relating to personal injury, property-related actions do not generally share the substantial medical and scientific issues involved in establishing the causation and etiology of disease.[105]

Actions for property damage involve multiple defendants as do personal injury actions, and joint and several liability, under the same rules of apportionment recommended in Recommendation Nine, ought to prevail. The Recommendation relating to modification of procedural and substantive law applies here, too, with the additional recommendation that in the area of actions for property damage, class actions appear appropriate.[106]

Actions Under Superfund and State Programs for Remedial Actions

The impact of certain kinds of hazardous wastes is likely to affect a number of property owners' interest in a fashion which is not dealt with most effectively by individual damages. For instance, compensating each homeowner for the contamination of his well when scores of other wells in the area are similarly contaminated is likely to be less efficient than the construction of a water supply system to serve all similarly affected homeowners in the area.[107] In situations of this kind, which are likely to recur, state claims against the "Superfund" may be available under §111(b) and (c) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). The underground water of the state is a "natural resource within the boundary of [the] state belonging to, managed by, controlled by, or appertaining to the State[,]" for which the state may claim the costs of remedial action, and seek to collect:

> (2) the costs of...State efforts in the restoration, rehabilitation, or replacement or acquiring the equivalent of any natural resources injured, destroyed or lost as a result of a release of a hazardous substance. CERCLA §111(c)(2).

The state could -- and should -- under appropriate state law provide a program for the replacement of natural resources -- such as the construction of a water supply system to replace contaminated wells -- seeking reimbursement under the appropriate provisions of Superfund. In the alternative, a state could seek the replacement of destroyed natural resources, such as private water supplies, by filing a claim under CERCLA §107 on behalf of the citizens of the state, in a representative capacity as parens patriae.[108]

It has come to the Study Group's attention that there have been some administrative delays in the management of claims for Superfund support in cleaning up hazardous waste problem sites, and that the state authorities have been informed that only a small number, not more than 10-15 percent of the sites, are likely to be cleaned up by Superfund contributions in the foreseeable future. The need for rapid response to state cleanup needs and for more substantial funding has been indicated and states are beginning to consider Superfunds of their own. The slow progress of federal Superfund cleanup, sometimes tied to the difficulty of state provision for the payment of the state's share, coupled with the doubts relating to the tax preemption under CERCLA §114 leaves the states in a difficult position. This concern has prompted our recommendation that the states enact legislation to provide for public programs of state remedial measures, and that Congress clarify its intent relating to the preemptive reach of §114.[109]

Part IV Notes

1. For analytical comments on no-fault compensation plans generally, *see* CALABRESI, THE COSTS OF ACCIDENTS (1970). Calabresi & Hirschoff, *Toward a Test for Strict Liability in Torts*, 81 YALE L.J. 1055 (1972); Ehrenzweig, *Compulsory "Hospital-Accident Insurance: A Needed First Step Toward the Displacement of Liability for Medical Malpractice*, 31 U. CHI. L. REV. 279 (1964); Havighurst & Tancredi, *Medical Adversity Insurance -- A No-Fault Approach to Medical Malpractice and Quality Assurance*, 51 HEALTH & SOC. (Milbank Memorial Fund Q.) 125 (1973); HOLDER, MEDICAL MALPRACTICE 431-434; O'CONNELL, ENDING INSULT TO INJURY (1975); O'Connell, *Expanding No-Fault Beyond Auto Insurance; Some Proposals*, 59 VA. L. REV. 749 (1973). For an analysis of the involvement of tort law in the direction of distributive justice and a system of social insurance, *See* England, *The System Builders: A Critical Appraisal of Modern Tort Theory*, 9 J. LEGAL STUDIES 27 (1980). *See also*, Note, *Allocating the Costs of Hazardous Waste Disposal*, 94 HARV. L. REV. 584 (1981). For discussion of New Zealand's multi-coverage compensation statute, *see* Vautier, *No-Fault Insurance and the Accident Compensation Legislation in New Zealand*, INT'L BAR J., May 1975, at 45; Palmer, *Accident Compensation in New Zealand: The First Two Years*, 25 AM. J. COMP. LAW (1977). Note that the no-fault compensation remedies proposed or discussed include plans for non-employment related injuries, as in medical malpractice or product liability. For analytical views opposed to no-fault compensation, *see*, *e.g.*, Corboy, *The Expanding Universe of Jeffrey O'Connell: Backing Into A Brave New World*, 1976 U. ILL. L. FORUM 74 (1976); N.Y. A.T.L.A., QUALITY MEDICAL CARE -- THE CITIZEN'S RIGHT 294-307 (1975); Lanzone, *No-Fault Medical Malpractice: Is this Really the Solution?* 11 TRIAL LAWYERS Q. No. 3 pp. 46-48 (1975).

2. *See* Part II, Dimensions and Complexity of the Hazardous Waste Problem, and Appendix J.

3. *See*, *e.g.*, "200,000 Delayed Deaths from Asbestos Forecast," N.Y. Times, 12/25/81. Note that asbestos fibers have been found in 96% of all urban dwellings in the U.S. C.E.Q. ENVIRONMENTAL QUALITY 1978, at 180.

4. *See*, *e.g.*, a discussion of the cooperation among the thousands of plaintiffs in DES cases around the country, in Rheingold, *Mass Disaster Litigation and the Use of Plaintiffs' Groups*, 3:3 LITIGATION 18 (1977). *See also* Comment, *DES and a Proposed Theory of Enterprise Liability*, 46 FORDHAM L. REV. 963, 978 (1978).

5. See, e.g., Judge Pratt's description of tens of thousands of servicemen, including those from other countries, who have been injured by Agent Orange, in *In re* "Agent Orange" Product Liability Litigation, M.D.L. No. 381, 506 F. Supp. 762 (E.D.N.Y. 1980); reversed for lack of federal jurisdiction, 635 F.2d 987 (2d Cir. 1980). *See also* C.E.Q., ENVIRONMENTAL QUALITY 1979 at 213-14 for a short history of the controversy.

6. See, e.g., 2 HARPER & JAMES, LAWS OF TORTS §11.5 at 742.3 and "Fault as a Basis of Liability," §12.1 at 744-47, and §12.4 at 752-57 (1956); PROSSER, HANDBOOK OF THE LAW OF TORTS, ch. 1 §1 (4th ed. 1971).

7. *See, e.g.*, Harley & Rheingold, *New Survey of Medicaid Malpractice Litigation*, N.Y.L.J. (April 28, 1976) to the effect the experienced malpractice specialists will not accept a case unless it is "worth" (1976) at least $40,000. in potential recovery.

8. For proposals in the medical malpractice and product liability field relative to binding election between a no-fault and a traditional tort remedy, see writings by Jeffrey O'Connell, *No Fault Liability by Contract for Doctors, Manufacturers, Retailers and Others*, 1975 Ins. L.J. 531; *Elective No-Fault Liability by Contract With or Without an Enabling Statute*, 1975 U. Ill. L.F. 59; *An Elective No-Fault Liability Statute*, 1975 Ins. L.J. 261: *Transferring Injured Victims' Torts Rights to No Fault Insurers: New "Sole Remedy" Approaches to Cure Liability Insurance Ills*, 1977 U. Ill. L.F. 749 (1977).

9. This approach is generally followed in worker's compensation when the injured worker sues the manufacturer of the faulty machine responsible for his injury.

10. Such entry barriers are not unusual in automobile no-fault statutes. *See* Henderson, *No-Fault Insurance for Automobile Accidents: Status and Effect in the United States*, 56 ORE. L. REV. 287 (1977); Note *No-Fault Automobile Insurance: An Evaluation Survey*, 30 RUTGERS L. REV. 909 (1977). Comments compare the "pure" no fault approach with the add-on tort law with entry barrier approach.

11. CAL CODE CIV. PRO. §§1141-20 21 (Deering 1981). *See also* HENSLER *et al.*, JUDICIAL ARBITRATION IN CALIFORNIA (Rand Institute for Civil Justice, 1981).

12. Delegations of this kind have become quite common, as for instance, in Titles 18 and 19 (Medicare and Medicaid) in the Social Security Law, though the nature of the delegation is different in each of these programs, and in the Clean Air Act (Enforcement of State Implementation Plans, C.A.A. §110, 42 U.S.C. §7410) and in the Clean Water Act (Enforcement of National Pollutant Discharge Elimination System, which allows states to enforce their own permit system subject to federal law). C.W.A. §402, 33 U.S.C. §1342.

13. One of the bills that was eventually merged into CERCLA provided for medical expenses and wage loss, namely S. 1480, 96th Cong., 2d Sess., introduced on July 11, 1979 by Senators Muskie, Stafford, Chafee, Randolph and Moynihan. The bill provided for 100 percent of lost wages in the first year following illness or injury, and 80 percent loss during the second year. Medical expenses are to be covered, under a detailed scheme for the proof of medical causation, for medical expenses incurred within six years of discovery of ilness or injury. *See* S. Rep. No. 96-848, 96th Cong., 2d Sess. (1980) at 23.

14. *See* CERCLA §§103, 104, 107, 42 U.S.C. §§9603, 9604, 9607. These sections make it clear that CERCLA is not concerned with clean-up of environmental pollution generally but with the clean-up of hazardous spills and wastes. The problem of defining the coverage of compensation systems so as to define the covered risk first arose in workers' compensation, which in 42 states limited coverage to injuries "arising out of and in the course of employment," which has given rise to substantial litigation. LARSEN. WORKMEN'S COMPENSATION §§6, 15.30, 29.10. *See also* Note, *Workmen's Compensation -- A New "In the Course of Employment" Concept*, 56 NEB. L. REV. 216 (1977).

15. The idea of the exclusivity of the worker's compensation remedy for occupational injury or disease is well established, with all states designating it as the exclusive remedy by statute. LARSEN, *supra* note 1 , at §65.10. This rule, however, has not affected the employee's right to sue third parties in negligence if they were responsible for the injury. In a waste disposal operation, such third party responsibility would be difficult to prove, and the principle of proper cost allocation would argue for applying the usual workers' compensation remedy. For recent sources on workers' compensation and occupational disease, frequently involving hazardous substances and wastes, *see* FELLNER and SAVELSON, OCCUPATIONAL SAFETY AND HEALTH -- LAW AND PRACTICE (Practising Law Institute 1976); PAGE and O'BRIEN, BITTER WAGES (1973); LARSEN, THE LAW OF WORKMEN'S COMPENSATION §§41.00-41.90 (1952, 1978); PRACTISING LAW INSTITUTE, HANDBOOK ON OCCUPATIONAL SAFETY AND HEALTH (1980); U.S. DEP'T. OF LABOR, AN INTERIM REPORT TO CONGRESS ON OCCUPATIONAL DISEASES (1980); Edes, *Compensation for Occupational Diseases*, 31 LABOR L.J. 595-601 (1980); Kutchin, *The Most Exclusive Remedy Is No Remedy at All: Worker's Compensation Coverage for Occupational Diseases*, 32 LABOR L.J. 212-228 (1981); LaDov, Mulryan and McCarthy, *Cumulative Injury and Disease Claims: An Attempt to Define Employer's Laibility for Worker's Compensation*,

6 AM. J.L. & MED. 1-28 (1980); Note, *Compensating Victims of Occupational Disease*, 93 HARV. L. REV. 916-937 (1980).

16. *See supra* note 14.

17. CERCLA §104(i), 46 U.S.C. §4604(i). For summary tables of toxic substances and their human health effects, *see, e.g.*, "Common Hazardous Wastes," C.E.Q., ENVIRONMENTAL QUALITY 1980, at 217; "Occupational Cancers," C.E.Q. ENVIRONMENTAL QUALITY 1979 at 192-93; "Chemicals or Industrial Processes Associated with Cancer Induction in Humans," C.E.Q., ENVIRONMENTAL QUALITY 1979 at 199-200. *See* Appendix J.

18. *See infra* Fourth Recommendation.

19. *See infra* Ninth Recommendation.

20. Some members of the Study Group favor the use of some form of hybrid rulemaking. For excellent general discussions, *see* Stewart, *Vermont Yankee and the Evolution of Administrative Procedure*, 91 HARV. L. REV. 1805 (1978); Williams, *"Hybrid Rulemaking" Under the Administrative Procedure Act: A Legal and Empirical Analysis*, 42 U. CHI. L. REV. 401 (1975); Pederson, *Formal Records and Informal Rulemaking*, 85 YALE L. J. 38 (1975). For a model hybrid rulemaking statute drafted for use in areas of scientific uncertainty, *see* Charo, *A Specific Proposal for Hybrid Rulemaking*, 7 COL. J. ENVIR. L. 69 (1980).

21. Other commentators have felt it is necessary to presume that the toxic substance in question was the sole cause of the claimant's injury. *See, e.g.*, Soble, *A Proposal for the Administrative Compensation of Victims of Toxic Substances Pollution: A Model Act*, 14 HARV. J. LEGIS. 683, 744-45, Model Act §14 at 796-800.

22. *See* text accompanying notes 42-44, *infra*.

23. McCORMICK, HANDBOOK ON THE LAW OF EVIDENCE (2d ed. 1972) at §343, pp. 806-07.

24. *Id.* at 808.

25. WEINSTEIN & BERGER, WEINSTEIN"S EVIDENCE (1980) (hereafter cited as WEINSTEIN), at 300-07.

26. *Id.*

27. *See* text accompanying notes 42-80, *infra*.

28. WEINSTEIN, *supra* note 25, at 300-05.

29. ROTHSTEIN, EVIDENCE IN A NUTSHELL (2d ed. 1981), at 125.

30. WEINSTEIN, *supra* note 25, at 301-28.

31. *Id.* at 301-13.

6 AM. J.L. & MED. 1-28 (1980); Note, *Compensating Victims of Occupational Disease*, 93 HARV. L. REV. 916-937 (1980).

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29. ROTHSTEIN, EVIDENCE IN A NUTSHELL (2d ed. 1981), at 125.

30. WEINSTEIN, *supra* note 25, at 301-28.

31. *Id.* at 301-13.

32. *Id.* at 300-03. F.R.E. 301 states:

> In all civil actions and proceedings not otherwise provided for by Act of Congress or by these rules, a presumption imposes on the party against whom it is directed the burden of going forward with the evidence, to rebut or meet the presumption, but does not shift to each party the burden of proof in the risk of nonpersuasion, which remains throughout the trial upon the party on whom it was originally cast.

33. 279 U.S. 639, (1929).

34. WEINSTEIN, *supra* note 25 , at 301-24. The New Jersey Supreme Court Committee on Evidence reached the same result, concluding that the rational connection test appears to have little vitality today and has been under vigorous attack. *Id.*

35. 219 U.S. 35 (1980).

36. *Id.* at 43-44.

37. WEINSTEIN, *supra* note 25, at 301-23.

38. Usery v. Turner Elkhorn Mining Co., 428 U.S. 1 (1975). *See also* text accompanying notes 55-75, *infra*.

39. *See* note 60 *infra*.

40. WEINSTEIN, supra note 25 , at 301-26.

41. *See*, *e.g.*, Supreme Court Standard 303. *See also* County Court of Ulster City v. Allen, 442 U.S. 140 (1979) and Mullaney v. Wilbur, 421 U.S. 684 (1975). *But cf.* Patterson v. New York, 432 U.S. 197 (1977).

42. *See*, *e.g.*, Brooks v. Industrial Commission, 24 Ariz App. 395, 539 2d 199 (Arizona 1975); Clark v. Peabody Testing Service, 265 Ark. 489, 579 S. W 2d 360 (Arkansas 1979); Newgard v. Industrial Commission, 58 Ill. 2d 164, 317 N.E. 2d 524 (Illinois 1974); McDowell v. Town of Clarksville, 241 N.W. 2d 904 (Iowa 1976); Lambert v. Avondale Shipyards, 292 So. 2d 352 (La. App. 1974); DeSa's Case, 3 Mass. App. 711, 323 N.E. 2d 773 (Mass. 1975); Narkeeta Inc. v. McCoy, 247 Miss. 65, 153 So. 2d 798 (Miss. 1963); Griggs v. A.B. Chance Co., 503 S.W. 2d 697 (Mo. App. 1973); Etchison State Acc. Ins. Fund, 16 Ore. App. 344, 518 P. 2d 199 (Oregon 1975); Lewis v. Workmen's Compensation Appeals Bd., 43 Pa. Cmwlth. 70, 401 A. 2d 863 (Pa. 1979); Mazzarella v. I.T.T. Royal Electric Division, 388 A. 2d 4 (R.I. 1978); Watkins v. Texas Employers Ins. Ass'n., 534 S.W. 2d 443 (Tex. Cir. app. 1976); Lipman v. Industrial Comm'n., 592 P. 2d 616 (Utah 1979).

43. *See, e.g.*, Rogers Electric Co. v. Kouba, 603 P. 2d 909 (Alaska 1979) (Upholds Alaska's presumption in favor of compensability); Lawhead v. United Airlines , 59 Hawaii 551, 584 P. 2d 119 (Hawaii 1978) (Presumption of compensability especially designed to ensure compensation when the claimant exhibits an injury or disease -- here, the flu -- which may arise from a variety of causes, including the claimant's employment); Henry v. Schenk Mechanical Contrators, Inc., 169 Ind. App. 178, 346 N.E. 616 (Ind. 1976); Lindsey v. H.A. Lott, Inc., 387 So. 2d 1091 (La. 1980) (Upholds Louisiana's presumption that if an accident is preceded by good health and followed by poor health then the accident is the cause of the poor health); McClelland v. Haggerty Wrecking Co., 384 S.W. 2d 93 (Kansas City, Mo. Ct. of App. 1964) (Upholds Missouri's presumption that an on-site injury is work-related). Similar to the general presumption of coverage is West Virginia's provision that if a condition cannot be positively attributed to a cause other than the compensable injury, it is presumed to have arisen from that injury, Lanier v. State Workmen's Compensation Commissioner, 238 S.E. 2d 687 (W. Va. 1977); Workman v. State Workmen's Compensation Commissioner, 236 S.E. 2d 236 (W. Va. 1977).

44. Mass. Workers' Compensation Law §7A. Note that the Massachusetts presumption applies in cases of fatal unwitnessed accidents.

45. New York Workers' Compensation Law §21. For application of §21, see, e.g., Rayford v. National Union Hospital and Nursing Home Employees, 57 A.D. 2d 975, 394 N.Y.S. 2d (N.Y. 1977); Robles v. Mosgood Theater-Saunders Realty, 53 A.D. 2d 972, 385 N.Y.S. 2d 822 (N.Y. 1976).

46. *See, e.g.*, Goff v. John Bogdan & Son, 55 A.D. 2d 806, 390 N.Y.S. 2d 261 (1967); Goddu's Case, 323 Mass. 397, 82 N.E. 2d 232 (1948).

47. *See, e.g.*, Parsons Corp. of Calif, v. Director, Office of Workers' Compensation Programs, 619 F. 2d 38 (9th Cir. 1980) (The employer has the burden of proof to show, by substantial evidence, that the injury was not work-related); Matter of District of Columbia Workmen's Compensation Act, 554 F. 2d 1075 (D.C. Cir 1976), *cert. denied* 429 U.S.820 , 97 S. Ct. 67 (1976) (presumption that injury is work-related is difficult to overcome).

48. *See, e.g.*, Downes v. Industrial Comm'n., 113 Ariz. 90, 546 P. 2d 826 (Arizona 1976); Beloit Foundry v. Industrial Comm'n., 62 Ill. 2d 535, 343 N.E. 2d 504 (Illinois 1976); Toomer v. City of Portland, 391 A. 2d 325 (Maine 1978); Anderson's Case, 373 Mass. 813, 370 N.E. 2d 692 (Mass. 1977); Kelley v. N.Y.C.T.A., 39 A.D. 2d 1006, 333 N.Y.S. 2d 764 (N.Y. 1972) *aff'd.* 353, N.Y.S. 2d 164 (1974); Cheldon Radio

Cab Co. v. Workmen's Comp. App. Bd., 10 Pa. Cmwlth. 478, 310 A. 2d 726 (Pa. 1973).

49. *See, e.g.*, Blacker v. Matlack, Inc., 349 So. 2d 916 (La. App. 1977).

50. *See. e.g.*, Amerson v. Employers Ins. Co., 105 Ga. App. 336, 124 S.E. 2d 496 (1962).

51. Russell v. Sohio Southern Pipe Lines, 236 Miss. 722, 112 So. 2d 357 (1958).

52. Mitchell v. Public Employee's Retirement Bd., 28 Ore. App. 339, 559 P. 2d 1325 (1977).

53. Mathies Coal Co. v. Workmen's Compensation Appeals Bd., 40 Pa. Cmwlth. 120, 399 A. 2d 790 (1979).

54. Armco Steel Corp. v. Workmen's Compensation Appeals Bd., 43 Pa. Cmwlth. 443, 402 A. 2d 563 (1979).

55. P.L. 91-172, 83 Stat. 742, 30 U.S.C. §§801 *et seq.* (1969), *as amended* by the Black Lung Amendments of 1972, P.L. 92-303, 2 B.R.B.A. pp. 1-51; as further amended Black Lung Benefits Reform Act of 1977, P.L. 95-239 and Black Lung Benefits Revenue Act of 1977, P.L. 95-277, Vol. A.B.R.B.S. pp. 1-63 (hereinafter known *in toto* as "the Black Lung Act"), and as further amended by the Black Lung Benefits Revenue Act of 1981, P.L. 97-119, to be codified at 26 U.S.C. §9500 (1981).

56. 20 C.F.R. Ch. IV, subchapter B, §§725.202(b), 725.212(3), 725.218, 725.222.

57. Barnette v. Califano, 585 F. 2d 698 (4th Cir. 1978) (no benefits awarded because burden of proof not met by claimant). *See also* Fleming v. Clinchfield Coal Co., 7 B.R.B.S. 302 (1977).

58. The Black Lung Act § 2B 30 U.S.C.A. §902(b) (Supp. 1981).

59. §§411(c)(1), (2). (3), (4) and (5), 30 U.S.C.A. §921(c)(1), (2), (3).

60. The Black Lung Benefits Revenue Act of 1981, P.L. 97-119 (to be codified at 26 U.S.C. §9500) was signed into law on December 29, 1981. It made two major changes in the existing program. First, it altered the tax structure and increased the size of the fund. Second, it repealed some of the presumptions in the earlier Black Lung Act.
The 1981 Amendments transferred provisions of the fund to the Internal Revenue Code, conforming these provisions to those of other similar trust funds. A temporary increase in the excise tax on coal to $1.00 per ton of underground coal and to $.50 per ton on surface-mined coal was mandated, with a limitation of the tax to 4% of the per ton sales price. The amendments also mandated an increase in the interest rate which "responsible operators" must pay on interim benefits that the fund advances so the interest rate approximates existing money market conditions.
Furthermore, the 1981 amendments transferred to the fund the liability for the approximately 10,200 claims previously denied and subsequently reopened and approved under the standards of the 1977 amendments. Eliminated from the program is the obligation to pay retroactive lump sum benefits when an intiial determination of liability is made, but is contested by the operator.
Eligibility standards were tightened by the elimination of the 15-year presumption for pulmonary or respiratory impairments, elimination of the 10-year respiratory disease presumption, and elimination of the presumption applied to miners who had worked for 25 years or more in the mines, for purposes of survivors' benefits.
For a discussion of the Black Lung Act and the adequacy of its compensation, see Dept. of Labor, An Interim Report to Congress on Occupational Diseases 85-92 (1980). See also Lopatto, "Amendments Fight Excesses of Black Lung Statutes," Legal Times, March 22, 1982.

61. 20 C.F.R. §718.203(c), 43 Fed. Reg. 17725 (4/25/78).

62. The constitutionality of this irrebuttable presumption was explicitly upheld in Usery v. Turner Elkhorn Mining Co., 428 U.S. 1, 24-27 (1975). The Court also upheld the constitutionality of the other rebuttable presumptions. A rational relationship test was applied. Id. at 23.

63. §4111(c)(3), 30 U.S.C.A. §921(c)(3) states:

> If a miner is suffering or suffered from a chronic dust disease of the lung which (a) when diagnosed by chest reoentgenogram, yields one or more large opacities (greater than one centimeter in diameter) and would be classified in category A, B, or C in the International Classification of Radiographs of the Pneumoconiosis by the International Labor Organization...

64. The Black Lung Act §2C, 30 U.S.C.A. §902(b).

65. *See* text accompanying note 61, *supra*.

66. Black Lung Benefits Reform Act of 1977, H.R. 95-151 at 6 (testimony of Dr. Daniel Fine). *See also id.* at 7 (testimony of Dr. Edgar Dessen).

67. *Id.* at 5.

68. *Id.* at 6-7.

69. Usery v. Turner Elkhorn Mining Co., 428 U.S. 1 (1975).

70. *Id.* at 28.

71. 219 U.S. 35 (1910).

72. *Id.* at 43.

73. Usery v. Turner Elkhorn Mining Co., 428 U.S. 1, 28, *quoting from* United States v. Gainey, 380 U.S. 63, 67 (1965).

74. Usery v. Turner Elkhorn, *id.* at 28-29.

75. *Id.* at 29-30.

76. H.R. 9616 (95th Congress, 1977).

77. Soble, *supra* note 21, 14 HARV. J. LEGIS. at 796-800.

78. *See* H.R. 9616 §14(c).

79. H.R. 9616 §14(b)(3).

80. H.R. 9616 §14(d) states:

> For any claim for certification as a victim pursuant to §16, the only showing required of the person filing a claim, necessary to give rise to the rebuttable presumptions of (b), shall be -
> (1) the opportunity for exposure to the toxic substance within the known geographic scope of the toxic substance pollution if definable under §15;
> (2) the opportunity for such exposure over a sufficient time span, if defined under §15; and
> (3) an injury or disease pursuant to §13..

81. For comparison, workers' compensation statutes generally provide for one-half to two thirds of average weekly wages. LARSEN, *supra* note 14. The adequacy of workers' compensation has been severely criticized. REPORT ON THE NATIONAL COMMISSION ON STATE WORKMEN'S COMPENSATION LAWS (1972);

WHITE PAPER ON WORKERS' COMPENSATION, U.S. Depts. of Labor, Commerce, H.E.W. and H.U.D. (1974). Chart V in U.S. Chamber of Commerce, *Analysis of Workers' Compensation Laws*, shows that although more states provide benefits measured by two-thirds of wages, most have very stringent limits on the maximum weekly benefit; E.g., as of January 1, 1980, Ala. $136, Ariz. $192, Colo. $222.73, Conn. $261, Del. $164, Fla. $211, Ill. $353, La. $149, N.J. $185, N.C. $194, N.Y. $215, Tenn. $107, Tex. $119, Va. $199.

82. On the collateral source rule *see generally* Comment, *The Collateral Source Rule: Double Recovery and Indifference to Societal Interests in the Law of Tort Demands*, 2 U. PUGET SOUND L. REV. 197 (1978); Fleming, *The Collateral Source Rule and Loss Allocation in Tort Law*, 54 CAL. L. REV. 1478 (1966); Note, *Unreason in the Law of Damages: The Collateral Source Rule*, 77 HARV. L. REV. 741 (1964). The collateral source rule initially provided that no mention could be made in a trial of collateral sources; otherwise the wrongful tortfeasor would gain an advantage. The reason for the rule is no longer convincing since punitive element of tort law is no longer stressed. No-fault compensation plans generally require credit for collateral sources. Professor O'Connell has suggested that the deduction of collateral sources be applied to all "insurance-like" sources both public and private, including social security. O'Connell argues that in death cases, and even in the case of public and private pensions exceeding the payee's vested amount, as well as in term life insurance, the plaintiff's receipts should be subtracted as a collateral benefit. O'Connell, *A Proposal to Abolish Contributory and Comparative Fault, With Compensatory Savings by Also Abolishing the Collateral Source Rule*, 1979 U. ILL. L.F. 591.

83. *See supra* note 15.

84. *See* Dep't of Labor, An Interim Report to Congress on Occupational Diseases 65-78 (1980). *See also* note 81 *supra*.

85. *See*, note 13, *supra*.

86. Another possibility mentioned was to set the limit in relation to the average income for the state or region.

87. *See generally*, note 82, *supra*.

88. *See* Part II, Dimensions and Complexity of the Hazardous Waste Problem, and Appendix J.

89. *See* note 12, *supra*.

90. Federal delegation normally leaves states free to designate the appropriate agency to assume the delegation. *See* note 12, *supra*.

91. *Compare* Clean Air Act §110(a)(2)(F), U.S.C. §7410(a)(2)(F), requiring state implementation plans to have "necessary assurences that the State will have adequate personnel funding and authority to carry out such implementation plan".

92. State contributions are a normal part of federal-state cooperative legislation. *See, e.g.*, C.W.A. §402, which provides for state contributions to federally financed public waste treatment works.

93. *Compare* CERCLA §§211 and 221, establishing Hazardous Substance Response Trust Fund.

94. One member believes that if the Tier One system is not funded from general tax revenues, claims for compensation for injuries for exposure to hazardous wastes disposed of *prior* to the adoption of this proposal at non-orphaned inactive sites should not be compensated from the Fund but instead left to existing State statutory and common law remedies. Otherwise, he believes that the Fund would quickly be depleted and that an incentive would be created for parties to close active ongoing sites. Permitting recourse to the Fund without subrogation in a non-orphan situation only for prior disposal at a site which continues in operation would encourage continued operation of existing disposal facilities in his view.

95. Administrative Procedure Act, 5 U.S.C. §706(2)(A)(Supp. 1981).

96. Citizens to Preserve Overton Park, Inc. v. Volpe, 401 U.S. 402 (1971).

97. For discussion, *see* Part IIIA, *Liability for Personal Injury When Ownership Has Changed*, *supra*.

98. For Discussion, *see* Part IIIA, *Plaintiffs*, *supra*.

99. For discussion, see Part IIIA, *Apportioning Damages, Nature of Liability, Joint or Several*...*supra*.

100. *See* Reyners, *Compensation for Nuclear Damage in the OECD Member Countries*, in MacNeil, ed. COMPENSATION FOR POLLUTION DAMAGE (1981); *Compensation for Nuclear Damage in the OECD Member Countries*, 20 NUCLEAR LAW BULLETIN 50 (1977); OECD, NUCLEAR LEGISLATION: ANALYTIC STUDY (1976).

101. The Paris Convention has been ratified by Austria, Belgium, Denmark, France, Federal Republic of Germany, Greece, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, and the United Kingdom. OECD, NUCLEAR LEGISLATION: ANALYTIC STUDY 11, (1976).

102. For discussion, *see supra* Part IIIB.

103. For discussion, *see* Analysis of Rebuttable Presumptions, in the Fourth Recommendation, *supra*.

104. *See* New Jersey v. Ventron Corp., 182 N.J. Super. 210 (App. Div. 1981). *See also supra* discussion in Part IIIA, Strict Liability.

105. *See* Part IIIA, *Available Causes of Action for Damage to Private Property and Environmental Interests*, *supra*.

106. For example, in May 1978 the town of Bedford, Massachusetts closed four wells which were accidentally discovered to contain up to 2,100 ppb of dioxane and up to 500 ppb of TCE. Bedfore responded to the crisis by restricting water use, instituting an increased block rate water structure and banning new water connections. The community also purchased water from four neighboring towns until one of them closed two of its main wells due to trichloroethylene contamination. The cost of buying outside water and conducting engineering studies placed a large financial burden on the town. Comm. of Mass., Special Legis. Comm. on Water Supply, "Chemical Contamination: Working Paper for the Water Quality Task Force," (Boston, 1979) at 11-12; cited in C.E.Q., ENVIRONMENTAL QUALITY 1980 at 97. Similarly, 16 private drinking water wells were closed in 1977 when the town of Gray, Maine discovered trichloroethylene, freon, acetone, xylene and dimethyl sulfide had leached into the well water from a nearby McKin Co. facility. The well water was not only offensive in taste and odor, it could even discolor laundry. The residents turned to alternate supplies of water, eventually extending the town pipeline. E.P.A., Oil and Special Materials Control Division, "Damages and threats Caused by Hazardous Material Sites," WH-548 (1980) at 2; cited in C.E.Q., *id.* at 98.
For a popular description of the pollution of private wells in Atlantic City, N.J., *see Troubled Water in Atlantic City*, DISCOVER March 1982, pp. 76-80.

108. 42 U.S.C. §9607 (Supp. 1981).

109. *See supra* Part IIIA, State Hazardous Waste Statutes.

Mr. **Gore**. Without objection, we will make that a part of the record.

Professor **Grad**. Thank you very much. The long latency, of course, is not simply a scientific problem. Long latency and the problem of establishing what exposures caused which health effects means that we cannot get a clear count of the dimension of the problem. One of the very real issues in making any kind of proposals in this field is that although we are unable to quantify it, we do know we have a major problem, because we know it from any number of other fields. There is the earlier parallel experience with the asbestosis field, the Kepone exposures, exposures to PCB's, brown lung, black lung, and all the rest of it. Invariably, what has turned out with long latency periods in all of these fields is that we have many more cases than we first suspected. What we really have, if you want me to put it in the vernacular, is: We have a tiger by the tail, but we don't exactly know the size of the tiger. Quite simply, there is a problem of quantification because the cases have not as yet fully emerged. We have a good solid ground for suspicion that there will be substantial numbers of cases, and they will be emerging over the next 20, 30, or 40 years. What does this mean in terms of legal responsibility or liability? It means that you have an enormously aggravated problem of finding responsibility.

Let me give you some examples. First of all, in any one dump site, chemical companies, industry, various other sources may have dumped all kinds of substances over many years. You do not know who dumped which and when it was dumped. You cannot tell one company's waste from another. You cannot tell who dumped which particular Kepone. You cannot tell which particular hazardous substance was dumped by any particular company. There are other problems, not only the multiplicity of disposers. What you also find if you try to put responsibility on the present owner, is that you are probably putting it on the wrong person. You may not. He may have held the particular piece of property over many a year. But often property does change hands, corporations do change, and property changes ownership over a period of time. If you take a look at the Love Canal story, if you take a look at any number of other cases which are referred to in our work, you will find that many of these dump sites have changed hands many times and it is terribly difficult to pin responsibility on any one particular owner. So you have the problem of proof of causation; you also have the problem of pinning responsibility on the proper defendant. In this particular context, the question of the joinder of parties, the question of attributing liability, the question of joint and several liability, emerges very clearly. The truth of the matter is that we have an unprecedented legal problem of previously unknown dimensions. I suspect that it is larger than the asbestos, the PBB and all of these other earlier situations because in many respects it is more variegated and far more difficult to grasp. In these other instances you could at least attribute injury to a particular situation.

We did look, as part of our obligation under section 301(e), into present remedies and into the question of barriers to recovery. These barriers to recovery are endemic; they affect the entire field. I have begun to mention some of them already. One aspect of it, which is related to the long latency periods, is a recurring statute-of-limitations problem. Believe it or not, at least six or possibly as many as a dozen States in the Union do not have any very clear statement as to when a cause of action accrues. In many instances, this means that it accrues, effectively, at the time of exposure. This means that when you have a 20- or 30-year latency period, by the time the person knows he is sick, his period for bringing a law suit has already lapsed. In effect, he has lost his chance to sue or to get any kind of compensation or recovery before he even knew he was injured.

Mr. GORE. In other words, the statute of limitations runs out during the latency period?

Professor GRAD. During the latency period.

Mr. GORE. That was in 12 States?

Professor GRAD. They are listed there. There are six which quite clearly have this problem, and there are others where time of accrual is uncertain where you cannot quite tell when. But we have that very well documented in our study.

The other problem which I have already mentioned, is the question of the joinder of parties. We have apportionment of liability problems because of the long latency, because of the mixture of substances that goes into any kind of disposal area or dump. Because of the question of changes in ownership, we have this question of who is responsible, who has the responsibility for this particular kind of exposure. And when you are dealing with a tort remedy, the burden is on the claiment to prove not only causation but also to prove who caused it. In other words, the question quite simply is one of pinpointing the responsiblity and putting it on a particular defendant. When the property has changed hands three, four or five times in the interim, and indeed when many industrial units and enterprises have dumped in a particular site, it gets to be terribly difficult to put responsibility on any one party. This presents an enormous legal barrier to recovery at the present time. We cannot legally, in some instances, join parties defendant and, in many States, we cannot impose joint and several responsibility on parties who did not really and technically act in any kind of concert but who just happened to be successive owners of the same property and who were successively responsible. As a matter of fact, there have been many instances in the law, and these are documented in our report too, where the courts have been very tender with the present owner. If the present owner can show that he was not the one who was responsible for the disposal, then you may frequently find that you cannot get a hold of the person who was responsible for dumping the material there in the first instance. In addition, you have throughout this country a lot of sites which have been called "orphan sites." What is an orphan site? An orphan site is one which nobody wants to own. In other words, there is no financially responsible owner for the site. So even if you can attribute responsibility to the particular site, it will not do you any good because you cannot collect damages from that particular owner. These are often very complex cases, and I will get into this joinder problem also in the context of causation.

There is also the question of the joinder of parties plaintiff. Generally in the tort area, class actions have been discouraged. They do raise some problems. It is very difficult to get plaintiffs to join in some cases. There have been various efforts to join plaintiffs, and it is important because these lawsuits are so enormously expensive, take so much by way of technical and scientific and medical testimony, that unless you can get plaintiffs to join, tort action simply will not be brought. It is plainly too expensive and absolutely impossible for any one party who does not have the means to bring an action of this kind. Besides, the trial bar, the trained negligence lawyers, normally will not take a lawsuit of this kind, a toxic tort case, unless it is "worth" around $50,000 or better, unless there a can be a recovery for that amount. This means that a person who had dermatological injuries and was out of work for 3 weeks and lost—oh, let us make him a highly paid employee—about $1,000 or $1,500, and he has had another $500 in medical expenses, the sum total of so-called specials would be $2,000, he can chase around forever and he will not find an attorney to bring that kind of a complex case, unless he can find others to join in with him and bring some kind of a joint action.

Finally, and this affects all of the hazardous waste cases, the proof of causation is an almost insuperable obstacle in tort cases. The question involves multiple deposits from several services on one site, as well as the long latency period. We do not all stay in one place long enough. In other words, we may live near a site, but do we move around. We are a mobile population, and that means we may have been exposed to a half a dozen sites and suffered a half a dozen exposures over any one year's period. This means, in effect, that if you are going to try and prove that a particular site was responsible for the injuries, you are likely to be completely out. Again, the latency and mobility during the period of latency is going to interfere with proving causation. The other aspect, of course, is the point which has been made previously by the physicians who testified before you, particularly Dr. Selikoff, who has done so much work in this field and who is practically the "dean" of the field of environmental disease. The scientific and medical testimony is terribly difficult to get, and very costly to get. We do not have the correlation between particular kinds of substances and particular kinds of diseases, and it is terribly difficult at this juncture to prove that this exposure caused that disease. In other words, the 1 to 1 relationship, which is essential in the tort context, simply is not there.

We then looked to the availability of statutory and common law remedies, and it is very difficult to find any that are really satisfactory. There are very few statutory remedies at this juncture. Several States have begun moving in that direction. California in particular has moved in that direction fairly recently. We do not know yet what is going to come of their law. But in most instances, even where States do allow some compensation, some opportunity for personal injury actions by statute, they have not gotten over the hurdle of proof of causation. Even though they may have some causes of action, the proof of causation still is problematical. The other aspect of it is that under Federal law, we now face the *Sea Clammers* case and *Milwaukee* v. *Michigan*. The two cases in combination mean that we have no more implied Federal causes of action. In other words, the claim that a violation of RCRA, for instance, gives rise to personal liability will not stand. We have a situation now where the *Sea Clammers* case and *Milwaukee* v. *Illinois and Michigan* have very clearly indicated that not only do we not have a Federal common law of nuisance action—which I do not think we ever really had for personal injuries—but we do not even have an implied cause of action. The Supreme Court decisions now hold in the environmental law area that because Congress has not clearly said that you may imply a cause of action and has not expressly provided for a cause of action growing out of the violation of pollution control laws, there simply is no such cause of action.

This then throws us back to common law, and there are many common law causes of action. Of course, States do differ. It is a nice academic conceit to speak of "the" common law, because there are 50 common laws in this country. This means that we are facing the problem in each of the States: what kinds of causes of action for hazardous waste injuries are there? There is trespass, there is negligence, we can move in the direction of strict liability—and this very clearly is a strict liability field—we can move in the direction of public nuisance or private nuisance, and all of these provide some possibility of remedies I stress "possibility of remedies" because even though there are theoretical bases for recovery, when you get right down to it, each and every one of these may face the statute of limitations barrier; each one of them probably faces the joint and several liability hurdle, that is, the apportionment of liability hurdle, where unless you put the burden on the defendants to apportion the obligation among themselves, you simply cannot recover; and last but certainly not least, in each and every one of them you face the problem of proof of the causal nexus, connecting the injury with the original exposure. The way the Study Group came out, and I think this is a sound conclusion is that though there are many causes of action for personal injury which may be utilized in the field, the barriers to recovery are substantial, and unless you bring a very major case or unless you can have many plaintiffs combining in a lawsuit, the chance of recovery under the common law is relatively minimal at this juncture, and the common law is not likely to be the answer to the many lawsuits which are likely to emerge as these latency periods come to an end. What this means is that many members of the Study Group, including people who have a long and abiding love for the common law, long and abiding respect for common law tort remedies, recognized that common law would not in this area provide the answer, would not provide many answers, but could indeed provide some answers in some instances where the difficult job was undertaken to prove cansation, which may be very difficult.

The way the Study Group came out, and I certainly associate myself very strongly with the set of recommendations, is to recommend a two-tier remedy. A two-tier remedy indicates the compromises reached within the Study Group. In addition to maintaining common law remedies, a no-fault compensation remedy is recommeded, a Federal-State mechanism, where indeed the law would be Federal law, but the remedial administration would be on the State level. In other words, the compensation system would be a State level compensation system, in accordance with Federal law, and as you mentioned before, Mr. Chairman, relying heavily on rebuttable presumptions to prove responsibility or liability. There would be liability regardless of fault. It would be a no-fault compensation system, but you would still have the burden, which you have in every compensation system, of proving the relationship of the injury to the cause, not in the same way in which you would in a tort system, but you would certainly have to prove that there had been exposure and there was some way in which the injury was caused in a manner that is being protected here. I might say, any number of States in their workmen's compensation statutes do rely on rebuttable presumptions. Rebuttable presumptions, as was pointed out here, do indeed occur in the asbestos field, among others. They are relied on in the black lung field, and they have been approved in many instances by the courts. As long as they are reasonable, they will meet due process requirements. If you are interested, I can call your attention to the rebuttable presumptions which we have proposed for this particular compensation scheme. They occur at page 198 of the appendix to my statement. All that needs to be shown is that the source involved in the claim was engaged at the time of exposure in the production, transportation or disposal of hazardous wastes; that the claimant was exposed to such hazardous waste by proximity, contact, ingestion, inhalation, or by some other form of exposure; and that the claimant suffered death or the kind of injury or disease which is known to result from such exposure—in other words, injuries and diseases associated with this kind of exposure. Then the following rebuttable presumptions should arise: That the exposure to the hazardous waste generated, transported or disposed of caused or contributed to the death, injury, or disease of the claimant; and that the source by or in which such hazardous wastes were generated, transported or disposed of was responsible for the claimant's exposure and for the resulting death, injury or disease. In other words, the known-to-result issue in this particular set of rebuttable presumptions is the crucial one, and it will of course still be necessary to show that the particular kind of injury is known to result from particular kinds of exposure. I might say that there was certainly no unanimity on this set of rebuttable presumptions, and in addition there were a number of members of the Study Group who would have preferred to rely entirely on the preparation of so-called toxic substance documents, which were intended to be somewhat similar to the kind of documents as you find in the air pollution area, if you will, the criteria documents, and which would in some way relate exposure to a particular kind of injury.

Let me say that I will not protract this any longer. I have a sense that no-fault liability, the compensation route, the rebuttable presumption route is the way to go here. I am not unmindful of the fact that this is likely to be an expensive remedy. There are situations out there, many of them, which will call for compensation, medical compensation, and for income support for persons injured in this fashion. It does, indeed, come under the heading of a social insurance scheme, and I suppose that many would object to it on those grounds.

With the major problems we are likely to face in the future, I see no other way to meet our responsibilities but to make it possible for victims in this situation to recover. If I may be permitted just an additional word, it seems to me that we, as a society, pay in any event. In other words, there is no such thing as free disposal of hazardous wastes. If we do not pay by way of compensation, the victim will divide up the costs and his family will suffer. We will cast the burden, as we have done in so many other instances, on other social insurance mechanisms, such as social security, unemployment insurance, medicare, medicaid, and the like. In other words, we are just shifting the cost; we are not avoiding it or evading it. So that over the long haul, it is simply a question of how can we best carry the costs and how can we best meet our obligations. What is proposed here is the same kind of funding mechanism that has been provided for the Superfund. In other words, in effect a tax on the manufacturers of chemicals, a tax on feed stocks, and a tax on crude oil, and the possibility if that fund runs out of recouping from general revenue. The other possibility, also written into this particular proposal, is that at least prospectively there would be subrogation of recovery against the responsible party. There was a great deal of discussion in the Superfund group on the problem of retroactivity, namely of persons being made responsible for violations which they did not know were violations at the time these substances were dumped. So, in order to get around this problem the compensation remedy is to be provided, regardless of when the exposure occurred. The subrogation element would only be applicable prospectively under this proposal.

Obviously this is a recommendation. Obviously hazardous waste is an ongoing problem. And I, myself, see this as an incremental process, where we will have to adjust and amend and revise the law as we go along. I know this is a common practice in the field of legislation, as you gentlemen indubitably know, and as I have had some occasion to experience from time to time as an active participant on the legislative drafting side.

Mr. GORE. Thank you very much. That is very important testimony, the first view we have had of this important report. We will be hearing a lot more about it in the weeks and months ahead. I was active in drafting portions of the liability section of Superfund when it came through the House and had an opportunity to do some of that research when we took up the matter. I found your testimony most interesting, and I am looking forward to working with you in the future in an effort to try to implement some of these recommendations. Our second witness on this panel is Dr. Gordon A. Enk, with Gordon A. Enk & Associates Inc., from Medusa, N.Y. Welcome, Dr. Enk. You are also engaged in a report soon to come out, an important and long-awaited study in the NSF. If you care to summarize any of your prepared statement, we will put the whole thing in the record.

STATEMENT OF GORDON A. ENK, PH. D., PRESIDENT, THE RESEARCH AND DECISION CENTER, MAKELY HOUSE, MEDUSA, N.Y.

Dr. ENK. Thank you, Mr. Chairman. I appreciate the opportunity to be here. The study we conducted with the support of the National Science Foundation was quite different in nature from some of the activities that have been reported on previously today. I would like to describe it briefly to the committee members and staff.

Through our project we involved the leading scientists and professionals in the field of victim compensation. They represented individuals who were involved in studying the issue of potential victims. We asked them to identify what the current state-of-the-art is in science to determine the questions of causation. It was a participatory process; it was not an empirical study. It was concerned with all forms of pollution-induced problems. There were scientists, clinicians, corporate executives, public interest group members, and governmental agency representatives who participated in the project. It included, among other things, a national-level scientists' forum held at the National Science Foundation in January. Basically I will highlight the results which were consensus recommendations that resulted from the entire project by both the forum participants and also our research staff. NSF was interested in the identification of both the strengths and the weaknesses of the current scientific and medical information base and asked us to obtain consensus recommendations from the professionals in the field as to what research needs to be done. Basically, our findings deal with an articulation of the problem areas where more work needs to be done. In fact, you will see we will cover some of the types of recommendations that have already been presented in the discussions about PCB's and Dr. Selikoff's presentation.

One of the key recommendations for research, agreed upon unanimously, was the need to understand the fate of chemicals and how they are transported in the environment. There was profound agreement that the scientists working in this field are only beginning to understand what they do not understand. The types of pinpointed dilemmas that Dr. Selikoff commented upon are pervasive. In almost all cases in which we allow chemicals to enter the environment, we do not understand what happens to them. Some of the specific areas for which research is recommended deal with understanding chemodynamics—what happens to the chemical, how it breaks down, and how it adds to other things: The transport in air, water, and noise; bioaccumulations, both in plants, such as made in the PBB discussion, but also in plants in the general environment, in your garden, your backyard, and your lawn. We are finding in New York State, lawns have a tendency to accumulate PCB's, and the people living near some of the dumps are being told that they can live in the house but they cannot go out and cut the lawn. Bioaccumulation just is not understood; we are in our infancy in that field. The whole field of chemical reactions, both antagonistic and synergistic, is seriously deficient. I felt a great deal of empathy for some of the individuals who earlier presented testimony. They were both sensitive to their scientific data base and also trying to extend it to inform the committee. But they did not want to be misleading to the committee members in terms of what we know. We need systematic monitoring. We need reconnaissance monitoring. We need surveillance monitoring.

We need both subjective monitoring and objective monitoring. The subjective monitoring is much along the lines of what Dr. Selikoff talked about. If you walk out and see there are no cats in a farmyard, that should tell you something. You do not have to do a lot of extensive research to figure out that there is something weird about that farm. The objective monitoring, of course, is what scientists are much more comfortable with, the ability to systematically gather data, analyze them, and speak only from their strengths and their weaknesses. The last area in which the fate of chemicals research needs to be conducted deals with the rate and the transfer coefficients for chemicals in the environment. This is an area of science that was rarely talked about 10 years ago, and there is basically very little research. It is only in a couple of universities where this has taken place. Until they understand these factor scientists cannot begin to give the informed answers that members of this committee would like to have.

The second key recommendation, of the seven that I will cover, deals with some of the scientific gaps that need to be filled. There is, first of all, a tremendous gap between the fields of toxicology and the fields of epidemiology. There are other related fields that are important to the question of victim compensation, but until we are able to conduct the transdisciplinary research between those two fields. The toxicologists mainly works with animal populations, conducting either short-term tests over a couple of hours or a couple of days or does long-term tests, on the order of magnitude of a couple of months, and sometimes, years. The epidemiologists focusses on human populations and cannot comment on the experience of the individual. We have not learned to bridge the gap and really build a transdisciplinary science to fill this information gap that would clearly tell us when a person is a victim. The second area is that of the clinician. This is the physician or the occupational health specialist in a corporation who sees an individual who is sick or ill. Clinicians are not trained to look for the cause of the disease or illness. So even if we were able to deal with the problem of causation that has been talked about time and time again, we have to understand that the people on the firing line in the scientific and the medical community are not equipped to answer most of our questions. Even if we had the rules of causation agreed to, we do not have the clinicians who think in those terms. They think in terms of illnesses and cures. They look for symptoms, and they try and remedy the symptoms as soon as possible and try to eliminate them. Until we have a cure group of clinicians in this country who are looking at the victim and also thinking about the cause, society is going to have that response gap that was described to us in the PBB care. Citizens have had to go out on a personal search—and I think I counted about 11 physicians in 4 hospitals—before a linkage was made. Furthermore, even that linkage was serendipitous. According to a paper commissioned for our study by Carnow and Conibear, from the University of Illinois, there are fewer than 300 clinicians in this country who are certified and capable of even dealing with disease causation questions. Most of the training programs, in fact I think it is fair to say that as of this date virtually all of the training programs that were training clinicians to deal with these questions have now been eliminated. As Dr. Selikoff noted, we have cut off our information base and our resource base that could engage the questions which have come before the committee.

The third recommendation deals with the need to develop scientific protocols. These are information gathering tools—questionnaires, interviews, health data measurements—that are designed and agreed upon before the crisis takes place. We need the public health specialists, epidemiologists, psychologists, sociologists, and the medical profession to come to an agreement on what types of information and what types of data bases are needed. We must anticipate our information needs so that when we get the next Love Canal or when we get the next Three Mile Island or the next PCB exposure, we can gather the data and can be able to tell the individuals in the communities which are affected what is really happening to them or how long they will have to wait until they can be told what is happening to them. This was the highest ranked recommendation. Scientists felt the greatest need was to conduct the multidisciplinary research to develop and gain consensus on the scientific protocols.

The fourth recommendation focussed on building an equitable victim compensation program. The scientists suggested we separate out the types of individuals and communities that are exposed. A five-part topology was recommended. The first component was to separate out the voluntary risk takers from the nonvoluntary risk takers. Voluntary risk takers are those individuals who in fact not only know they are being exposed but in fact are often compensated by higher wage schemes for being exposed. The nonvoluntary risk takers are those individuals who do not even know that a pollutant may be in their environment, as in the case of the PCB's or PBB's in the early stages. Third component of the topology would be that we have knowledgeable risk makers. They are those organizations, governmental agencies, and corporations that in fact know they are exposing people in communities or their workers to toxic pollutants ahead of time. They should be distinguished, in any type of legislation or program, from the unknowledgeable risk makers. Of course there is a learning experience that is implied. The experience has shown that at some point the unknowledgeable risk maker knows he or she has a problem. The next group in that topology are the victims. Those individuals who are not only exposed but are also harmed. This was one of the difficulties in the discussion that we heard this morning. It is one thing to be exposed; it is another thing to be harmed. A victim compensation program has to take this separation into account if it is going to be fair and equitable.

The next recommendation deals with an issue that has been noted time and time again in the testimony. I mention it here because of the 50 professionals who participated in the scientists forum, there was a dramatic agreement of the importance of the institutional setting in which we are trying to resolve the problems of victims. That is usually the courtroom, as we have heard. As Professor Wade, in a commissioned paper, stated:

> The courts are not guided by probabilistic evidence, and at the same time, the scientists and the medical profession, who are the ones with the responsibility to decide or to treat potential victims of illnesses, think in terms of probabilities.

Until this heuristic difference is engaged and considered in the public debate and resolved, I do not believe we can come up with a scheme that will work and still be fair and equitable. I do not believe we can expect scientists to become lawyers, or vice versa. In fact, the project's recommendation, is similar to some of the work proposed as far back as 1978—that is alternatives to tort suit—and again proposed this afternoon by Mr. Grad and the findings of the ABA group, is that we must change the institutional setting in which we consider victims and their plight.

The next recommendation is one which I do not think anyone has mentioned, but I believe it is an important one. As we went through the scientists' forum, the participants who considered some of the suggestions, such as the development of health registries, or the development of thorough records of individuals in terms of their occupational exposure, they noted that one of the problems may represent a fundamental conflict between the scientists' need for information—for example, the toxicologist's or the epidemiologist's needs for population information, about what happens in that small community—and an individual's right for privacy. The tension between information needs and privacy concerns is not a small one. One could expect that if everything that you have done and everything to which you have been exposed was part of a record that any public health official could pull out, we would have a real problem. Dealing with this issue is not a simple exercise. The tension is between the individual's right for privacy and societies need for information. If we are going to develop a system that really tracks and compensates those individuals who are truly exposed, and harmed we must begin the public dialog, through hearings and other processes such as this as to what is an acceptable mix.

The last recommendation that came from the scientists' forum and the study was the need for a much broader, multiperspective, multiorganizational type assessment of the current compensation schemes that are available. This includes everything that has already been discussed by previous witnesses and goes beyond it. Of the 50 individuals who participated in the forum and who represented an incredible breadth of experience in these questions, 47 felt that the tort system as well as previously considered alternatives were inadequate to deal with the types of problems imposed upon victims of toxic pollution situations. The minority of three presented a strong case as to why the current approach, especially the tort system, could adapt if we just gave it time. But the strong majority of the participant stated that we need to develop some new schemes and probably some radical alternatives.

From having worked at the interface of science and public policy for more than a decade, I believe that in the victim compensation issue we are facing some of the most challenging and critical problems yet encountered. I believe that toxic substance exposure will make the energy situation and our need for improved energy technologies look easy.

It appears that in the past we have faced dilemmas. However, without a crisis such as Love Canal or Three Mile Island, or kepone, or PCB's, our society does not seem to want to acknowledge to problems of victims and engage the question of the increased number of exposed citizens. When we experience a crisis, such as the ones I mentioned, then we do not have the time to do thorough studies and thoughtful evaluation. I believe that we should use the time now between crises to develop such techniques like the scientific protocols mentioned earlier.

Quite frankly, I was very pleased to see that this committee undertook these hearings it did at this time. We may be able to initiate some of the research that has been suggested as well as some of the public policy dialog this is necessary. I look forward to working with the committee and the committee staff members in any way possible to assist them in doing that.

One final observation. As part of the projects approach, we had the opportunity to commission a number of papers from leading scientists and lawyers who had been involved in the question of victim identification and compensation. One of the proposed papers which we had attempted to commission was to deal with causation. I spent weeks talking to some of the most respected scientists, philosophers of science, and historians of science, who have been recommended as potential authors. This was to be a commissioned paper, there was a modest honorarium, and of course there was the opportunity to introduce the issue into the public record and be part of the scientists forum. I could not find a respected scientists, a respected philosopher of science, or a respected historian of science, either in this country, or abroad, who was willing to take on the task of writing such a paper if it was to link victim compensation of individuals exposed to toxics and causation of a human health problem. The question of causation was one in which they did not want to engage. I am not saying there are not some people who would author that type of a paper. However, I talked to a large number of people who had been recommended by our scientific advisory committee and NSF. I could not find the individual. I do not think we are going to find a resolution to the causation issue this afternoon or even in another set of hearings. I believe we are going to have to admit that there is a big gap. We are going to have to develop schemes that allow us to do things without knowing how to build a causation link. Thank you very much.

[The prepared statement of Dr. Eck follows:]

Congressional Testimony

by

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To
Subcommittee on Investigations and Oversight
of
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on

Identification and Compensation of Victims of Toxic Substance Induced Disease: Pressing Needs for Better Information and Societal Responses

Biographical Sketch
Gordon A. Enk

Gordon A. Enk is President of the Research and Decision Center, a non-profit research and educational center headquartered in Medusa, New York. He is also President of Gordon A. Enk and Associates, Inc. His academic background includes a Bachelars Degree (B.A.) from Ripon College (1962) in Biology and Economics; a Masters Degree (M.F.) from the Yale School of Forestry and Environmental Studies (1967) in Forestry Economics; and a Doctorate (Ph.D.) from Yale University (1975) in Natural Resource Economics.

From 1970-1981 he served as Director of Economic and Environmental Studies at The Institute on Man and Science in Rensselaerville, N.Y. He has directed numerous research and professional training programs concerned with social decision-making and public policy issues at the interface of science, technology, environment and economics. The projects have dealt with land-use management, environmental impact assessment, social impact analysis, and technology assessment. They have examined issues such as decentralized energy systems, national water policy, electrical energy generation and transmission, oil spills and hazardous waste.

He has been the Principal Investigator of major projects supported by numerous organizations including:

- U.S. Department of Energy;
- U.S. Environmental Protection Agency;
- U.S. Department of Education;
- N.Y. State Department of Environmental Conservation;
- N.Y. State Public Service Commission;
- N.Y. State Deparment of Labor;
- National Science Foundation
- Rockefeller Foundation;
- Ford Foundation; and
- Electric Power Research Institute.

He is a member of the American Association for the Advancement of Science, American Economics Association, Society of American Foresters, and Sigma Xi.

Over the past decade Dr. Enk and the staff of the Research and Decision Center have developed, tested and are currently evaluating an 8 step approach designed to involve scientists, public policy decision makers, corporate leaders and impacted citizens in arriving at socially viable responses to complicated scientific - environmental - and social problems such as developing a scientifically sound and economically viable approach to victim compensation of individuals exposed to toxic substances.

An Overview

In early 1980, the staff of the Research and Decision Center initiated a multi-year project designed to assess the status of the available scientific and medical information related to victim compensation issues for pollutuion-induced diseases[1]. The study was supported by the National Science Foundation. Our approach to the project was to systematically involve leading professionals (e.g., scientists, clinicians, corporate executives, public interest group members and governmental agency representatives) concerned with the scientific and legal aspects of victim compensation[2]. It was an interactive project (as compared to an empirical study) based upon the latest information and scientific capability to understand the relationship between exposure to substances and the causation of human diseases.

The project included a national level Scientists' Forum held at the National Science Foundation on January 27-29, 1982. The preliminary findings and recommendations of this project are highlighted in this presentation. An Interim Report has been submitted to the NSF staff and is currently being reviewed. Substantial supporting material (e.g., Scoping Paper, Literature Review, Results of Networking and Interim Forum Report) will be submitted to the Subcommittee staff following this testimony[3]. I wish to thank Mark Boroush of the Research and Decision Center staff who assisted in preparing this testimony.

Where Do We Stand - Research Needs

The project staff and the professionals involved in the project and the Scientists' Forum reached the following conclusions:

1) The scientific understanding of the Fate of Chemicals after they enter the environment is in its infancy. Scientists are only beginning to understand, what they do not understand, about the

relationship between "the vast number of chemicals that enter the environment, the extreme heterogeneity of the various environmental media and the strong influence that these media have on a pollutant's chemodynamics."

Research is needed to understand pollutants and their:

Chemodynamics;
Transport in Soil;
Transport in Air;
Transport in Water;
Bioaccumulation;
Chemical Reactions (Synergistic and Antagonistic).

We need to initiate four types of systematic monitoring:

1. Reconnaissance monitoring. Defined as the conduct of periodic observation to disclose changes or trends.
2. Surveillance monitoring. Defined as the conduct of periodic observations made to support an enforcement program and to ensure compliance.
3. Subjective monitoring. Defined as spot-checking for broad or openended exploration of a problem.
4. Objective monitoring. Defined as the conduct of periodic observations with the expressed purpose of providing data for use in developing or confirming the results of quantitative models used to simulate the transport of a substance.

In addition, modeling research is needed to aid in the development of ecosystem models to determine the rate and transfer coefficients of chemicals as they are incorporated into the environment[4]. We also need to understand the thresholds at which chemicals put into the ecosystem become toxic. Appendix A describes the range of impacts from toxic exposure.

2) There are two serious scientific gaps central to Victim Identification that need to be acknowledged and rectified. First, there is an important distance between the fields of Toxicology and Epidemiology. Toxicology is based on short (e.g., hours and days) and long (e.g., days, months or few years) term tests with animals. The results are then extrapolated to humans. Epidemiology focuses on large human populations and provides limited or no information about individuals

and their unique exposure experiences. Since it is socially unacceptable to overtly experiment on humans we need to develop improved understanding once translation mechanisms between the results of animal experiments and human experiences. We need to improve our transdisciplinary research between these fields of science and we need to establish a dialogue between the fields to develop a unified, mutually acceptable approach to understanding toxicity of substances to individuals [5].

The second important gap is the one between the medical clinician (i.e. examining physician) and the scientist. As stated by Carnow and Conibear,

> "Both toxicological and environmental assessment require the determination of probability of undue absorption through inhalation, ingestion or bodily contact. A clinician's task is to diagnose a disease, not to ferret out its cause -- clinicians are not trained to look for causes; it is beyond their purview." [6]

In essence, this means that as a rule the doctors who see the people who may be "victims" focus on diagnosis and cure. They are not prepared to assess the cause. Thus, the potential victim is usually left without any professional guidance as to the real source of the illness.

What is critically needed is the initiation of research programs and academic training to prepare future doctors interested in environmental medicine to consider and assess the cause of the disease. According to Carnow and Conibear there are less than three hundred physicians with the required training and certification presently practicing in this country. Furthermore, several of the programs specifically designed to train these professionals have been severely reduced in recent years.

3) There is a critical need to develop, test and reach consensus

agreement regarding the appropriate and consistent Scientific Protocols to be used to gather public health information in times of crisis, such as Love Canal or Three Mile Island. Past experience often has involved the use of poorly justified and inadequately designed research protocols to help assess potential health impacts. This has resulted in considerable confusion on the part of citizens and public officials and frequently the eventual mistrust of those officials whose guidance is most needed in crisis situations.

A significant, multidisciplinary effort to develop research protocols to understand the human health, sociological, psychological and even political impacts of potential toxic exposure situations should be initiated. These should be developed, tested and endorsed by professionals in the field at a time when there is no crisis. We must strive to achieve consensus as to what types of information should be collected and analyzed in crisis situations in order to properly inform potentially impacted citizens and to help government officials and corporate representatives develop informed and appropriate responses.

4) Individuals, communities and organizations involved in victim compensation dilemmas are not a homogeneous group and can be described by a 5 part typology. Each group in the typology has unique characteristics and should be considered differently. The typology includes:

A. Risk Takers

i). Voluntary Risk Takers - those who know they are being exposed to and may even be compensated for the exposure.

ii). Non-Voluntary Risk Takers - those who are unknowingly exposed to potential pollutants and might actively choose to avoid exposure if they were forewarned.

B. Risk Makers

iii). Knowledgeable Risk Makers - those who know they are dealing with harmful substances and choose to expose others to the risk.

iv). Unknowledgeable Risk Makers - those who lack any understanding that they are dealing with potentially harmful substances.

C. Victims

v). Those who are exposed and harmed by a substance. The harm may be to their physical health, mental wellbeing, economic livelihood or other important factor.

An appropriate societal response to the new problems posed by toxic substance exposures will require that we be concerned with the compensation process and the manner in which we manage risks. Each of the five groups are part of the system and the needs of each must be considered.

5) The deliberations on Victim Identification and Compensation are strongly affected by the institutional setting in which the issues are considered - usually the courts. Through the course of our reserach project the differences between the heuristic or thinking approaches of lawyers and scientists often emerged as a key concern. As stated by Distinguished Professor of Law John W. Wade "the courts are not guided by probabilistic evidence."7 But, scientists (especially toxicologists and epidemiologists), using the scientific method to understand problems such as the causation of human diseases, do their analysis and present the findings and conclusions in terms of probabilities. The "standards of proof" of the lawyer and the scientist are distinctly different. While the scientist relies on mathematics, and more specifically, probabilities to establish what is considered to have been "proved," the lawyer presumes there is a "knowable" truth. Science seeks to understand the gradations,

while the law seeks clarity.

It was clear from the project results that these distinct "views of the world" are important to our discussions of the causation of disease. Any public policy dealing with victim identification and compensation should take these two views into account and develop an approach that explicitly considers how the approaches of science (i.e., research, experimentation and measurement) can be more understandably accomodated within a legal framework of the courts and an administrative program. A systematic, public dialogue between leading scientists and lawyers should be initiated to develop protocols and resolve the conflicts inherent in the present perspectives.

6) The information which scientists need (i.e., data the experience and exposure of individuals and populations) to assess the causation of disease present a fundamental dilemma. There appears to be a serious tension between the access to personal health histories or corporate files on worker health histories, which scientists need, and our social committment to protect the individuals right to privacy. Several of the scientific information needs could be eliminated if systematic health registries were maintained. To be most helpful, these would have to be fairly detailed and include information pertaining to occupational and non-ocupational situations.

Toward this end, two needs exist. First, the resolution of the potential tension between the individual's right to privacy and scientists' need for accurate data. Second, the design, testing and acceptance of an efficient information management system purposefully designed to provide the type of human health information that public policy makers and scientists need to assess the changes in public health.

7) An important result from the project was an overall assessment

of our current approaches to victim compensation. The Scientists Forum held in January 1982 involved more than fifty professionals dealing with Victim Compensation. They represented leading research organizations, professional and idustrial associations, universities, corporations, public interest groups and governmental agencies. Only three individuals of the fifty felt that our current approaches of victim identification and compensation were adequate and satisfactory. Only three felt that our current approaches should be left in tact to work out the problems. Appendix B provides additional information on the strengths and weaknesses of current compensation approaches. The evaluations of alternatives were generated as part of the NSF project. While there was no consensus as to what the new approach should look like, there was strong feeling that our current approaches work to no ones advantage - the individual, community, coporation or government agency.

Conclusion

The problems of developing viable and just victim compensation programs are significant. To be affordable, the approach must be efficient and effective. To be just, it must be equitable to the involved risk takers, risk givers and victims. The scientific information gaps are significant and will not be resolved quickly. Some of the critical issues are at the interface of science and our social decision making processes. The necessary research to fill the information gaps and the social dialogue on public policy should begin immediately.

Our recent social history of dealing with potential disease inducing pollution situations has not been encouraging. We have not demonstrated an great ability or willingness to be anticipatory. Without a crisis situation such as Three Mile Island or Love Canal we seem to lack the political and social will to engage in the necessary research and dialogue. When faced with a crisis, we lack the time and the agreed to protocols and access to sound information necessary to respond in an efficient, fair and humane manner. We should use the time between the crises to improve our understanding and develop better responses.

It is a pleasure to see this Subcommittee begin to consider the issues in need of resolution. I look forward to working with the committee members and staff as we attempt to use our time between crises.

APPENDIX A

CHARACTERISTICS OF TOXIC CHEMICAL EXPOSURE INDUCED DISEASES

In developing a perspective on the problems and issues posed by the health impacts of toxic chemical exposures it is important to recognize that the typical injuries and diseases induced by them are complex in ways that are particularly confounding for existing compensation programs and processes.

Marcia Silcox and Joseph Highland, in a paper developed for our National Science Foundation study, discussed eight concepts which are particularly valuable in identifying the sources of this complexity[1]. These are presented briefly here for the illumination of the problems and issues that they add.

- *Latency.* Many of the diseases and injuries which can result from toxic chemical exposures (e.g., cancers, neurological disorders) often are not manifested till many years after exposure. Latency periods from five to forty years are typical.
- *Multiple Targets.* A given toxic chemical may generate diseases or injuries at multiple biological sites. Asbestos exposures for example are thought to be causal actors in pulmonary carcinoma, mesothelioma of the pleura, mesothelioma of the peritoneum, and some gastrointestinal cancers. It is expected that a great number of toxic chemicals will not be singular in their target sites.
- *Multiple Factors in Exposures.* An individual may be exposed to many chemicals thoughout a lifetime which could lead to subsequent health impacts. This often makes it very difficult to be certain which toxic chemical is the cause of ensuing injuries or diseases.
- *Inestimable Dose Levels.* Establishing accurate dose estimates is not always essential to describing causal relations. But where it is required, the variability of exposures over long periods of time (which is not uncommon) and a lack of adequate past records create difficult-to-bridge barriers to accurate estimation.
- *Individual Variability.* There is tremendous variation among individuals in the human population. No two individuals are identical physiologically. They may exhibit grossly different responses to identical dose circumstances. This often disguises disease patterns and greatly complexifies causal attribution.
- *Diagnosis and Misdiagnosis.* The symptoms of chemical exposures often match those commonly observed in routine illnesses. The prospects for misdiagnosis are rife. This adds to the complexity of accurately ascribing causes to observed symptoms.
- *Disagreements Among Experts.* There are often substantial disagreements among qualified experts when issues of causation are considered. The intrinsic complexity of the diseases, the contextual complexity of the available data, and the infancy of the scientific knowledge pertaining to many suspected toxic chemicals only enhance the prospects for disagreements.
- *Definition of the At-Risk Population.* the definition of the appropriate population to study is essential to the validity of any causal relationships which are evidenced. But the task often proves to be troublesome in the conduct of studies.

These factors combine to create difficulties for the development of better scientific knowledge pertaining to toxic chemical exposures and subsequent health impacts. They also prove to be very troublesome barriers to the operation of compensation processes that depend upon a harmed individual's ability to prove that his or her health impairment resulted from past exposure to a toxic chemical.

References

1. Marcia F. Silcox and Joseph Highland, "History of Victim Compensation Science." The Environmental Defense Fund: Washington DC, July 1981.

APPENDIX B

PERSPECTIVE ON THE STRENGTHS AND WEAKNESSES OF CURRENT COMPENSATION PATHWAYS

A number of avenues currently exist (i.e., legal recourses, public insurance and social welfare programs) through which individuals exposed to of toxic chemicals may seek compensation for subsequent injuries and/or diseases. Social Security Disability Insurance, state Workmen's Compensation plans, and, to a lesser extent, Veteran's benefits, public welfare, and other special government compensation plans (e.g., Black Lung Benefits) represent public insurance and social welfare programs through which some claims for the compensation of health impacts from toxic chemical exposures may be pursued. Legal recourses for compensation exist as well - in particular, through Tort Law procedures (primarily, negligence, strict liability, or products liability).

Several analysts who have recently sought to examined both the effectiveness of these compensation processes for claimants and the incentives they generate for better risk management that the existing compensation approaches are working considerably less than adequately in the situations created by toxic chemical exposures. These conclusions were sharply highlighted by two recent studies.

Research by the Environmental Law Institute. In a 1979-80 study, the Environmental Law Institute examined the ways in which compensation cases for a representative set of chemical pollutants and human exposure pathways were handled by state legal mechanisms. Included in the research were cases pertaining to polychlorinated biphenyl polution of a river, pesticid/industrial contamination of groundwater aquifers, dioxin contamination of surface soil, lead pollution of air and land. In testimony in June of 1980, presented to the Senate Committee on Environment and Public works of the 96th Congress, this study group drew a number of significant conclusions:

- Existing legal mechanisms in the states sampled are generally inadequate for redressing toxic substance related harms. (The authors felt their conclusions generalized to most other states, as well.)
- The requirements of traditional Tort Law presents substantial legal barriers to recovery. The complex and long latency characteristics of the diseases typically associated with exposures to toxic substances often create major difficulties in generating legally adequate proof that a specific substance was the "proximate" cause of particular injuries.
- Seeking compensation for pollution-related injuries is usually cumbersome, time consuming, and expensive. This apparently places a damper on many otherwise legitimate cases.
- The compensation ultimately resulting from the cases which are pursued is generally inadequate.

[1]

Research Through The Research and Dicision Center's Project on Victim Compensation. Several independent research studies, undertaken as part of our project for the National Science Foundation, examined the strengths and weaknesses of a number of (hypothetical, but realistic) compensation claims as pursued through currently available Tort Law, Social Security Disability Insurance, and state Workman's Compensation pathways[2].

The cases considered were deliberately chosen to represent a realistic variety of exposure circumstance and human health impact histories, they included toxic chemicals in which there is a variation of scientific agreement on the causal relationship between prior exposure and subsequent disease. The exposure circumstances and chemicals considered were as follows:

1) offspring exposed to Diethylstilbesterol (DES) through the therapeutic use of the drug by mothers during pregnancy (considerable scientific agreement on the causal relationships);
2) occupational and ambient environmental exposures to the herbicide Trichlorophenoxyacetic acid (2,4,5-T) (substantial scientific disagreements and uncertainties);
3) ambient environmental exposures to the commercial process chemical Nitrilotriacetic acid (NTA) (substantial scientific disagreements and uncertainties);
4) occupational and ambient environmental exposures to Asbestos (considerable scientific agreement on the causal relationships).

Evaluations of the courses of claims were oriented toward understanding the costs (time, litigation expenses, etc) entailed by each pathway, the extent of the information produced during the case for adding to the knowledge base about toxic substance harms, the inclusiveness of the process (compensation for too many or too few?), and the deterrence impacts of case outcomes on irresponsible behavior by business, inappropriate claims, and poor risk management behaviors.

The details of these studies will be available in a forthcoming report[3]. These analyses reveal both strengths and weaknesses for each of these pathways. But the general conclusions which emerge over and above the differences in the details of the various cases do not differ majorly from the critical perspective asserted in the previously mentioned study.

A number of the specific points made by those researchers are worth presenting for the information of this Subcommittee.

The Tort Law approach remains a costly, demanding, and risky avenue through which an injured individual could seek compensation.

Proof of a causal relationship between manifest health impacts and a previous exposure situation is the central requirement in Tort proceedings. Adequately demonstrating this causation to meet the stringent legal standards is time consuming and costly, typically requiring extensive and expensive expert testimony. This has been difficult to accomplish where there is considerable scientific agreement on the capabilities of particular substances to cause certain long term diseases and where the exposure of individuals to such chemicals can be reasonably documented - let alone situations (probably more typical) where there is considerable scientific disagreement or scant knowledge on the causal linkages between substances and diseases or the specifics of exposures are difficult to prove.

Given the pragmatic operation of the Tort process and the economic and time pressures affecting plaintiffs and defendents, it is not reasonable to assume that the individual with sizable losses would typically recover an amount equal to those losses. The costs of the legal process and the risks of unfavorable outcomes created by the demanding levels of proof required create considerable incentives for plaintiffs to settle via out-of-court arrangements. It is estimated that Asbestos-related cases less than 2% of the conceivable claims have actually come to trial; of those that have, the plaintiffs have received favorable outcomes only 20%

of the time[4]. There are also pragmatic economic incentives for defendants as well to seek out-of-court settlements[5]. Settlements typically result in compensation amounts less than those which would have been awarded as the outcome of a successful court decision for a plaintiff[6].

The costs, time requirements, and complexity of the required cases create in many instances strong disincentives for otherwise meritorious cases to be pursued. There is a strong propensity for this compenstion pathway to be serously under-inclusive in the cases it processes as a result. It is estimated that it would be reasonable to assume that only half of those who were seriously injured as a result of exposure and deserving of compensation would practically receive adequate redress through it[7].

To be sure, the demands which the Tort Law system places on adequate proof of causation creates a strength in that there are strong deterrences imposed on the pursuit of reckless torts and on intentional actions. However, the under-inclusiveness of the process just identified reduces the effectiveness of the process's outcomes in stimulating improved risk management behaviors. Unfortunately, this result is more likely to occur in circumstances where risks are poorly understood (i.e., at the time where risk management ought to be most cautious and effective).

Another strength is that Tort Law will be likely to generate relevant information regarding toxic substance injuries and the etiology of associated diseases. But there is a potentially important limitation in this in that it places the burden of information generation more nearly upon the plaintiffs in cases - often the individuals least likely to have the data or the analytical resources to capably undertake the organization and interpretation of complex and technical information. Information relevant to future cases and future risk management practices can be expected to be developed. But this is not likely as a result to be done in a highly efficient or effective way.

Finally, statutes of limitation generally create significant limits on the availability of the Tort Law pathway to claimants. These statutes vary by jurisdiction. Some have attempted to adjust these limitations for cases pertaining to particular toxic chemical exposures in recognition of the often long latency period of the diseases associated with exposures. But they remain serious barriers in many cases.[8]

By virtue of the prospects that some exposures will result in health impacts which lead to occupational disabilities, *Social Security Disability Insurance* represents an alternative approach through which compensation could be pursued. But it represents, at best, a seriously flawed process. It is both underinclusive and overinclusive in ways that are not particularly constructive . Compensation is available only for diseases or injuries which result in total disability that prevents gainful employment for at least twelve months. As a result, it does not provide a viable basis for compensating injuries or diseases which do not affect employment (e.g., reproductive capability) or employment disabilities covering less than twelve months. It also does not apply to those who do not have insured status under the program. At the othur extreme, it is overinclusive in that benefits are available for any sufficiently disabling disease, regardless of the conditions which generated it, the disease's etiology, or the responsible party. As such, there is little or no entry of the comparative merits of cases or of the seriousness of the harm in determining the availability of benefits.

The process of compensation does not attempt to either ascertain or fix responsibility. The financial basis for the underwriting fund does not reflect the historical incidence of claims or the actions of contributors[10]. In consequence, there are few if any deterrence incentives built into this system.

From another angle, the adjucticatory process which is a part of this program does not attempt to relate disabilities and causative agents. As a result, the process should not be expected to produce information for use to improving the knowledge base pertaining to toxic substance injuries.

The prospects that toxic chemical exposures may occur in occupational settings, opens state *Workmen's Compensation* plans as avenues through which compensation claims may be pursued. The organization and procedural application of these plans vary on a state by state basis. But, the typical program also contains significant deficiencies as a basis for compensation.

Claims are limited to occupationally-originated injuries or diseases. Claimants are required to document the causes of their injuries/diseases. As is true in the Tort Law process, this could prove to be troublesome in exposure/disease situations where experts do not agree or the evidence is somewhat sketchy (though, procedurally, the requirements are less demanding than the requirements for proof of causation in the Tort Law process). There are also a variety of technical obstacles (e.g., rigid statute of limitations) which create a number of barriers to eventual recovery.

Available information indicates that compensation has been paid in only one thirteenth of all occupational disease cases pressed through this system[11]. Successful cases often result only after long delays and the recovery generally is substantially short of actual lost wages. This means that the system is likely to be severely underinclusive and undercompensating in its operation on toxic chemical exposure cases.

The process does generate some information for future use pertaining to toxic substance related disease, since the employee is required to provide evidence that the disease is occupationally caused. There are, however, few deterrences built into the system which create incentives for more effective risk management in the future.

In short. Those pursuing compensation in toxic chemical exposure cases have turned increasingly to Tort Law, remedies[12]. This results directly from the limitations and relatively low levels of the compensation available through existing systems such as Social Security Disability and Workmen's Compensation. It should be apparent, however, from the foregoing discussion that this represents the increased use of a process that still has serious deficiencies.

References

1. Environmental Law Institute, "Six Case Studies on Compensation for Toxic Substances Pollution: Alabama, California, Michigan, Missouri, New Jersey, Texas." Committee Print (Serial 96-13): Committee on Environment and Public Works, U.S. Senate, June 1980.

2. The study undertaken by the Research and Decision Center of Medusa, NY in 1980-1981 to assess the capabilities of the current scientific knowledge base in providing a basis for Victim Compensation was sponsored by the National Science Foundation's Division of Policy Research and Analysis.

3. A forthcoming report is planned to be published by the National Science Foundation's Division of Policy Research and Analysis. it will include the following draft reports prepared as a part of the Research and Decision Center's assessment of the scientific knowledge base for compensating victims of toxic chemical induced diseases: The Environmental Law Institute, "Effectiveness of Model Processes for the Compensation of DES-Reslated Injuries," Washington DC. March, 1982; Sheila Jasonoff, Effectiveness of Model Processes of Compensation for Pollutant-Induced Disease, The Case of 2,4,5-T" Cornell University, Ithaca, NY, April 1981; Fred C. Hart Associates, Inc., "Evaluation of the Effectiveness of Model Processes of Comensation for Pollutant-Induced Disease," Washington, DC, April 1981; Stephen Soble "The applicability of Three Models of Compensation for Victivs of Asbestos-Related Disease," Surray and Morse, Washington DC, may 1982.

4. Soble , ibid, p. 68.

5. Soble , ibid, pp. 58-64.

6. Soble , ibid, pp. 62-64

7. Jasonoff, ibid, p. 34.

8. Soble , ibid, pp. 54-58.

9. Jasonoff, ibid, p. 56.

10. Jasonoff, ibid, p. 56.

11. Jasonoff, ibid, pp. 61-62.

12. Fred c. Hart Associates, p. i.

Professor **GRAD**. Mr. Chairman, may I be permitted to make a very brief comment, and I am sure Dr. Enk will not mind.

Mr. **GORE**. Absolutely. Proceed.

Professor **GRAD**. A reference was made to the ABA study, and I would like to lay that particular ghost to rest once and for all. It is the Superfund section 301(e) study, created under the Superfund legislation. ABA is only one of the groups that participated in it. There were four groups of lawyers, designated respectively by ABA, ALI, ATLA, and the States' attorneys general. ABA should not either be credited or blamed for that particular study. I have my time with that one again and again, and I hope Dr. Enk does not mind my butting in. Since I was designated by the American Law Institute, and since I was the reporter for the entire group, it is a matter of some significance that the study be properly attributed.

Mr. **ENK**. I stand corrected.

Mr. **GORE**. Mr. Walker?

Mr. **WALKER**. Thank you, Mr. Chairman. Mr. Grad, when a company such as Michigan Chemical is the sole producer of a chemical such as PBB, and the company is no longer in existence, who should pay for future illnesses that the population of Michigan might incur?

Professor **GRAD**. That is a question that engaged the Study Group quite a bit. The cost will not go away, of course, and I suppose that the resolution that we came to in our report was that it ought to be paid out of a fund established by taxation on oil and chemical feed stocks. In other words the chemical industry and the crude oil industry ought to be bearing the burden in the first instance. Let me add that there was a split consideration in the report in that future exposures and injuries would be handled by way of subrogation whereas past exposures would be handled by reference to this particular fund. As a matter of fact, the way the compensation scheme is proposed, you would indeed pay compensation and provide compensation regardless of whether there was an opportunity for subrogation or not. Your question raises one of the very substantial difficulties in this area and points up what is, to me, the identification of what has become a substantial social issue.

Mr. **WALKER**. Are we going to end up having funds for every different imaginable causation factor? I am thinking of radiation. Obviously a tax on oil and feed stock does not address the question of radiation that might occur. Would you then set up something that the nuclear industry would pay into as well?

Professor **GRAD**. Fortunately, sir, we were not called upon to address the issue of general social insurance. If you want my own views on that, I would be glad to give them to you if I am given at least 2 hours.

Mr. **WALKER**. My question really goes to the idea that once you establish the precedent and put into place something that indicates that the liability for causation is affixed, and you utilize a funding that involves the taxation power of Government along the way or at least an assigned taxation power, you have really opened up the whole issue to a variety of other matters. That is what I am getting to.

Professor **Grad**. Yes, and let me try to answer. I think you are driven in that direction in instances where the causational factors and the question of attributing responsibility for liability are as complex and as difficult as they are in the hazardous wastes situation. In instances where this is not the case, obviously you do not have to go that way. In the radiation situation, for instance, normally responsibility is carried by the responsible utility. As a matter of fact, in the radiation field, too, what we have done is to engage in a certain amount of what we call "channeling." We do channel the responsibility for liability through the Price-Anderson bill to the particular utilities involved and the particular management of a nuclear plant. Otherwise, when there is excessive medical exposure, for instance, we attribute it to the particular responsible party. In any number of these areas, we have had to find liability-specific solutions. It just may well be that as time marches on, there will be more and more issues which are in some way similar to the hazardous wastes issue. It seems to me it is a very major issue, but it does in some way point up the generic nature of chemical injuries which are on the increase. Where we can indeed attribute responsibility, as in the product liability area, we do so; we do not need to go to a particular fund; I would suggest that even there we do distribute responsibility around by way of the insurance mechanism. But I think you can go in the direction of a special fund for hazardous wastes injuries without necessarily foreclosing other solutions in other areas.

Mr. **Walker**. Dr. Enk, how should we deal with the problem of the synergistic effects of some pollutants? In other words, what emphasis should be placed on the ability of certain substances which, when acting in conjunction with other factors, bring about adverse health effects?

Dr. **Enk**. I think that is one of seven of the issues included in the fate-of-chemicals recommendation that I made. When one says, "How important is it," I think we have some reasons to believe, for example as in the relationship between asbestos exposure and smoking, that it could be critically important. How much of the research resource base we want to allocate to it I think is a question that needs some further discussion and dialog, both within the industries that are producing those products and within the governmental agencies that are responsible for the regulation and the research in the field. The importance of this issue was very high ranking in the eyes of the scientists in the field. However, we certainly did not drive it to the point of putting a price tag on it.

Mr. **Walker**. If I understand your answer correctly, it sounds to me as though you are saying that causation can be apportioned. My question is, Is that something that we knowingly can state at this point, that we can apportion causation?

Dr. **Enk**. I do not believe so. I do not believe that we have the scientific information or the determination from a social perspective of how we would want to apportion the causation problem. I think the information base is far too insufficient; it is primitive.

Mr. **Walker**. Thank you.

Mr. **Gore**. Thank you. Dr. Enk, a suggested approach to compensate victims has been mentioned. It is to establish a compensation through taxation of the affected industry and to distribute those funds to the victims. This is related to the question just asked, but with your categories of risk takers, risk makers, and victims, how would you allocate the tax burden to each group?

Dr. Enk. The notion of a tax burden, I believe, deals with the question of the risk makers. I would certainly think that those industries or corporations or entities—because many times it is governmental agencies which are playing a role and are risk makers—who are knowledgeable of their potential to harmful situations should probably bear a higher burden.

Mr. Gore. Government agencies?

Dr. Enk. Both the Government agencies and the private corporations and institutes.

Mr. Gore. The government agencies also means the risk takers, because that is taxpayers' money.

Dr. Enk. No. There are certain situations where a governmental agency decision can lead to a situation where they are in fact causing people to be exposed. When the Federal Government and the New York State Department of Environmental Conservation licensed the West Valley plant for nuclear reprocessing, I would suggest that they were in fact a risk maker to the citizens of New York State and to whoever else the exposure might come.

Mr. Gore. But as far as the citizens of New York State are concerned, any portion of the tax burden that is shifted to the New York State government is just shifted to them.

Dr. Enk. That is true. I would not dispute that. But once again, you have a complex situation where part of the decision was a Federal one, part of that decision was a State one, and part of that decision was a corporate one, by a private corporation who was planning to make a profit out of the whole process. If you are saying, Mr. Chairman, that the citizens are in fact their own risk makers when a State agency——

Mr. Gore. I am not saying that. I am talking about the allocation of a tax burden. In Superfund, of course, a compromise was worked out that established some percentage of the money coming from the Government, but that is from the taxpayers. Generally, that may be equitable; I am not arguing with you. I am asking you how you would allocate the tax burden. I take it that what you are saying is that you are using the Superfund allocation as a model, thinking in terms of the lion's share on the industry that is identified as the principal contributor and maybe a little bit from the governments involved.

Dr. Enk. I think you will agree with me that in the end result, no matter what the mechanism or the institutional setup is, the citizens who are paying the taxes or the citizens who are buying the product are going to end up paying for the compensation resources. In Superfund, when we say that the industry should provide a portion through a tax on the industry, that of course is passed on either to the stockholders of those corporations or to the people who buy the products. So in effect, at the general level of the question, we always end up paying; we cannot escape that. But there is a differential contribution. If I do not buy that energy or if I do not use that petroleum product, I will not in fact be paying that particular tax. So I think it depends on the level of generality with which the question is raised. Within the topology that I presented, I would suggest that in terms of the burden of payment in, that the knowledgeable risk maker should pay a higher portion than the unknowledgeable; and similarly, that the unknowledgeable victim or the unknowledgeable risk taker probably should be compensated at a higher level than the individual who is knowledgeable and in fact may have been compensated through higher wages for his or her willingness to take risk.

Mr. GORE. What kind of scientific research is needed to bridge the information gaps you referred to, the gaps we presently are encountering in hazardous substances litigation?

Dr. ENK. I think one of the critical ones deals with the development of the tools to do the monitoring I suggested, the reconnaissance and surveillance monitoring. The basic research to study the coefficients in the rate of transfer of the chemicals in the environment is key. Nationally, we have almost completed eliminated funding for this type of research. There was research like that conducted in the sixties and the seventies, but we have basically eliminated it by the elimination of funds from organizations such as the National Science Foundation and the National Institutes of Health. I think those are two critical areas. The report which I will submit to the staff for their consideration goes into considerable detail in terms of specific areas of research recommendation. But the fate of chemicals, the monitoring, and the ecosystem models that need to be done are the two critical areas I recommend.

Mr. GORE. Thank you. Mr. Grad, as you noted in your statement, the use of strict liability does not resolve the problem of causation; I remember an argument on the floor when Superfund was being debated about this very point, you still have the causation problem, even with strict liability. Nevertheless, where a strict liability standard is found to reign, this has a substantial deterrent effect, does it not?

Professor GRAD. It does. As a matter of fact, Dr. Enk's response to your question relating to taxation relates to that to some extent, relating to the burdens which ought to be placed on particular groups. Strict liability is an effort to put the burden on the best risk avoiders, in preference to other groups. It so happens that in our society the best risk avoiders, which are in this instance chemical companies and disposers of waste, are also likely to be the best risk distributors, in the sense that they are best able to pass the costs along. So strict liability does indeed provide a method whereby you put the obligation to avoid liability and to avoid incidents on the group that is best able to avoid them, namely on the group of risk avoiders in this situation. You put it on the group as a whole, not just on individual enterprises. That has sometimes been a source of criticism of the strict liability approach; I think it is fair to say, though, that in a field where it is so very difficult to attribute specific liability and responsibilities, putting it on the group as a whole and letting that group avoid the risks by doing its share in better chemical waste disposal or in better control even in chemical manufacture and avoidance of spills, for instance, would of course add greatly to the reduction of that particular problem. One other aspect, as your question relates to strict liability, is that there is no such thing as strict liability as a single concept. I think our report does go into different approaches to strict liability, and our report favors strict liability which deals with the hazard of the activity itself. Many of these other approaches pull in negligence concepts by the rear door, as it were, in taking into consideration the location where the particular activities are carried out, considering whether or not there was adequate risk avoidance and so forth. In general, our approach was that certainly on tier 1, in the compensation remedy, liability ought to be imposed and the compensation ought to be payable on a very stringent approach to the strict liability issue. If you can show that this activity was carried on, if you can relate the exposure and the injury to the activity, that should be enough. Hazardous wastes disposal is dangerous wherever it is conducted, and as a matter of fact, the general impact on the environment is such that to relate it to particular locations or particular risk avoidance probably would not pay off in any particular fashion.

Mr. **Gore**. Thank you. We are going to have to move on, in spite of the fact that we have other questions that we could usefully ask you. I wonder if you two would be willing to respond to some brief questions in writing for the record?

Mr. **Enk**. I certainly would, sir.

Professor **Grad**. Yes, indeed.

Mr. **Gore**. Thank you very much for coming here today. It was excellent testimony; and thank you for the work that you are doing. Our final panel today consists of Fred Baron, with Fred Baron Associates in Washington, whose testimony will be presented by Steve Wodka. Mr. Baron, I am informed, is out with an illness, and we wish him well. Mr. William Bailey is on this panel, senior vice president of Commercial Union Insurance Co. in Boston, and Stephen Soble, with Surrey & Morse, here in Washington. We are delighted to have the three of you with us today. I apologize for the length of these proceedings. We appreciate your patience very much. It is an important and difficult topic, and we cannot do it without your testimony. Thank you so much for your patience. Without objection, your prepared statements will be put into the record. We will start with you, Mr. Wodka. You have Mr. Baron's statement, and if you would care to summarize portions of that, we would appreciate it due to the hour. The whole thing will appear in the record. Please proceed.

STATEMENT OF STEVEN WODKA, DIRECTOR, HEALTH EFFECTS RESEARCH, FREDERICK M. BARON & ASSOCIATES, WASHINGTON, D.C.

Mr. **Wodka**. Thank you, Congressman Gore. I will summarize it and go as quickly as I can because of the hour. My name is Steve Wodka, and I am director of health effects research for Frederick M. Baron & Associates. I am here in the Washington office. Mr. Baron would have wanted to be here. He is bedridden with bronchial pneumonia, and he has sent also Brian Weinstein, one of our attorneys in the Dallas office, to accompany me on some of the issues that you have asked us to address. I am familiar with the issues myself. I have spent 12 years working for the Oil, Chemical, and Atomic Workers before I came to work for Mr. Baron. Our practice has been limited almost exclusively to representing individuals who have contracted occupational diseases and who have retained our firm to pursue claims for monetary damages sustained by themselves and their families because of their impaired physical condition. Our firm has represented literally hundreds of victims of asbestos disease, radiation exposure, lead toxicity, and other similar exposures to hazardous substances. The tort liability system is the only compensation system that is currently providing equitable relief for victims of occupational disease. Worker's compensation benefits have proven to be almost in every jurisdiction woefully inadequate and poorly administered. It has been our general experience that pursuing a claim for worker's compensation benefits for an occupational disease victim takes almost as long, if not longer, than pursuing a common law tort claim for such a victim. Moreover, the rate of benefits collectible under the tort liability system at least provides a claimant with an opportunity to become fiscally responsible for his own problems. Even successful worker's compensation claimants receive benefits that could, under no stretch of the imagination, be considered adequate to place them in a position of self-sufficiency. The tort liability system is the only effective mechanism in our American legal system that is creating an incentive for manufacturers and suppliers of hazardous materials to prudently test and label their products. You have heard Dr. Selikoff testify earlier today that the asbestos litigation has been much more effective than governmental regulation in reducing asbestos exposure. The asbestos litigation has created a whole new series of rights for consumers and workers who are exposed to toxic and carcinogenic substances, whose injurious effects are delayed many years after initial exposure. In my opinion, it would be a grievous error to attempt, through legislation, to reduce the burden on manufacturers of hazardous substances from producing safe products and from paying valid claims that have been adjudicated against them. Such an action would only serve to confirm to American industry that it is capable of bailing out of the liability system after it has created substantial harm to workers and consumers through its own misfeasance and negligence. A bailout bill by the U.S. Congress at this point would permit the asbestos industry to escape from the problems that it alone created. If they cannot achieve a congressional bailout, the manufacturers and their insurance carriers are trying other tactics to relieve themselves of responsibility. At least one company, Unarco Industries, is attempting to utilize chapter 11 of the bankruptcy law to eliminate present and future claims against it by asbestos claimants. A careful analysis of the situation at hand will show that Unarco is, in fact, a solvent, substantial business concern. Although certainly it has had its problems with cash flow over the past several months, as have all other industrial steel concerns, Unarco Industries has a potential source of approximately $60 million in insurance coverage and is still capable of borrowing cash on the open credit market. This money could be used to pay legitimate victims and also to provide the company with the cost of their defense, which is now running approximately $800,000 per month in company funds. Unfortunately, however, four insurance companies have refused to honor the policies for which they were paid premiums years ago and have enticed Unarco into taking this action. If the carriers would honor the policies that they wrote and for which they received premium payments, it has been estimated by counsel for Unarco that certainly all present claims and perhaps all future claims could be handled without the necessity for such a drastic action. It must be emphasized that the entire asbestos tragedy could have been prevented. It has been proven in numerous forums that from the beginning of the modern upsurge in utilization of asbestos in the midthirties, asbestos manufacturers have known that their products could cause lung scarring and cancer. They consciously decided not to warn the ultimate consumers of their products of these hazards, hoping that their quest for profit would never be called into question. Incredibly, millions of American workers today are being exposed to legally permissible levels of asbestos dust that are sufficient to cause cancer. Even if asbestos production were to stop tomorrow, more than 25 million tons of asbestos have been installed in America's work places. At some time this asbestos will be released into the air, during maintenance, repair, or demolition work. OSHA has estimated that at least 2.3 million workers have some degree of occupational exposure to asbestos today. Of that 2.3 million, OSHA states that a significant number are exposed to airborne asbestos at the existing permissible exposure limit of 2 million fibers per cubic meter of air. In 1980, a joint NIOSH/OSRA work group determined that this permissible OSHA exposure limit is sufficient to cause cancer, most likely mesothelioma. Consequently, the Carter administration began a regulatory process that contained a plan to result in a significant reduction in the allowable asbestos limit by the winter of 1981-82, but within weeks of the takeover by the Reagan administration, Budget Director Stockman directed that this asbestos proposal be rescinded, after he received a target list from the U.S. Chamber of Commerce of proposed rulemakings that the chamber disliked. While the Reagan administration has done nothing to reduce worker exposure, it has made estimates of the number of excess cancers that the current OSHA asbestos standard will allow to develop. The estimates were made in a preliminary quantitative risk assessment that the Reagan administration has yet to make public. Based on the potential of 2.3 million workers exposed to the legal asbestos limit over a working lifetime, the Reagan administration calculations add up to a range of 18,400 to 598,000 new excess lung cancers, and these would be over and above the 10,000 excess cancer deaths per year that Dr. Selikoff has estimated is going to be with us from 1980 to the year 2000. Even if only a fraction of the potential 2.3 million workers are exposed to the legal limit, the risk assessment still provides a range of estimates that will continue the public health disaster from asbestos. I think a point of comparison here would be to the approximately 25,000 claims that have been made so far by asbestos victims, which is from past exposure of 20 or 30 years ago. Even only 20,000 claims seems to have created such a concern with the asbestos manufacturers and their insurance carriers. I believe that OSHA's inaction in this regard is no less criminal than driving a speeding car into a playground crowded with school children. The resulting tragedy seems to be inevitable. Thank you very much.

[The prepared statement of Mr. Baron follows:]

STATEMENT OF FREDERICK M. BARON (DELIVERED BY STEVEN WODKA)

My name is Frederick M. Baron and I am an attorney employed by the law firm of Frederick M. Baron & Associates, 8333 Douglas Avenue, Suite 1400, Dallas, Texas 75225. I am licensed to practice law in the State of Texas and before numerous other Courts including the United States Supreme Court. Our firm is presently representing claimants, as associated counsel, in several jurisdictions throughout the United States. Since the summer of 1973, my law practice has been almost exclusively limited to representing individuals who have contracted occupational diseases and who have retained our firm to pursue claims for monetary damages sustained by themselves and their families because of their impaired physical condition.

In the course of my practice, our firm has represented literally hundreds of victims of asbestos disease, radiation exposure, lead toxicity and other similar exposures to hazardous substances. Our experiences have been both in the areas of worker's compensation and third party tort liability litigation. I have recently published a textbook for attorneys entitled Handling Occupational Disease Cases and would like to draw on my experiences to make the following observations for this Committee.

1. Worker's compensation.—The tort liability system is the only compensation system that is currently providing equitable relief for victims of occupational disease. Worker's compensation benefits have proven to be, almost in every jurisdiction, woefully inadequate and poorly administered. It has been our general experience that pursuing a claim for worker's compensation benefits for an occupational disease victim takes almost as long, if not longer, than pursuing a common law tort claim for such a victim. Moreover, the rate of benefits collectible under the tort liability system at least provides a claimant with an opportunity to become fiscally responsible for his own problems. Even successful worker's compensation claimants receive benefits that could, under no stretch of the imagination, be considered adequate to place them in a position of self-sufficiency.

2. Bailing out the asbestos industry.—The tort liability system is the only effective mechanism in our American legal system that is creating an incentive for manufacturers and suppliers of hazardous materials to prudently test and label their products. The asbestos litigation has created a whole new series of rights for consumers and workers who are exposed to toxic and carcinogenic substances whose injurious effects are delayed many years after initial exposure. In my opinion, it would be a grievous error to attempt, through legislation, to reduce the burden on manufacturers of hazardous substances from producing safe products and from paying valid claims that have been adjudicated against them. Such an action would only serve to confirm to American industry that it is capable of "bailing out" of the liability system, *after* it has created substantial harm to workers and consumers through its own misfeasance and negligence. A "bailout" bill by the United States Congress at this point would permit the asbestos industry to escape from the problems that it alone created.

3. Prevention.—It must be realized that the entire asbestos tragedy could have been prevented. It has been proven in numerous forums that from the beginning of the modern upsurge in utilization of asbestos in the mid-1930's, the asbestos manufacturers have known that their products could cause lung scarring and cancer. They consciously decided not to warn the ultimate consumers of their products of these hazards hoping that their quest for profit would never be called into question.

Incredibly, even today, labeling requirements promulgated by OSHA are so weak that there are no requirements for a label indicating that exposure to asbestos can cause cancer. Product liability law, however, requires a jury finding of an adequate warning. Numerous cases have confirmed that an adequate warning means exactly that and that for a manufacturer to escape liability, the worker must be apprised of the true nature of the hazards to which he is exposing himself.

But the most important issue before us today is the continued exposure of millions of American workers to legally permissible levels of asbestos dust that is sufficient to cause cancer. Even if asbestos production was to stop tomorrow, more than 25,000,000 tons of asbestos have been installed in America's workplaces. At some time, this asbestos will be released into the air during maintenance, repair or demolition.

OSHA has estimated that at least 2.3 million workers have some degree of occupational exposure to asbestos. Of that 2.3 million, OSHA states that a "significant number" are exposed to airborne asbestos at the existing permissible exposure limit of 2,000,000 fibers per cubic meter of air. In 1980, a joint NIOSH/OSHA work group determined that this permissible OSHA exposure limit is sufficient to cause cancer, most likely mesothelioma. Consequently, the Carter Administration began a regulatory process that would have resulted in a significant reduction in the allowable asbestos limit.

But within weeks of the takeover by the Reagan Administration, Budget Director Stockman directed that this asbestos proposal be rescinded after he received a target list from the U.S. Chamber of Commerce of proposed rulemakings that the Chamber disliked.

While the Reagan Administration has done nothing to reduce worker exposure, it has made estimates of the number of excess cancers that the current OSHA asbestos standard will allow to develop. The estimates were made in a "preliminary quantitative risk assessment" that the Reagan Administration has yet to make public. Based on the potential of 2.3 million workers exposed to the legal asbestos limit over a working lifetime, the Reagan Administration calculations add up to a range of 18,400 to 598,000 new excess lung cancers. Even if only a fraction of the potential 2.3 million workers are exposed to the legal limit, the risk assessment still provides a range of estimates that will continue the public health disaster from asbestos. I think these cancers would be in addition to the approximately 10,000 excess cancer deaths per year during the period from 1980 to 2000 that Dr. Irving Selikoff has estimated will be the result of past exposure to asbestos during the 1940's to the 1970's.

4. Unarco and chapter XI.—Particularly in the area of asbestos litigation, because of its breath and scope, new tactics are being employed by the manufacturers and their insurance carriers to relieve themselves of responsibility. At least one company, Unarco Industries, is attempting to utilize Chapter XI of the Bankruptcy law to eliminate present and future claims against it by asbestos claimants.

A careful analysis of the situation at hand will show that Unarco is, in fact, a solvent substantial business concern. Although certainly it has had its problems with cash flow over the past several months, as has all other industrial steel concerns, Unarco Industries has a potential source of approximately $60 million in insurance coverage and is still capable of borrowing cash on the open credit market. This money could be used to pay legitimate victims and also to provide the company with the cost of their defense which now is running approximately $800,000 per month in company funds. Unfortunately, however, four insurance companies have refused to honor the policies for which they were paid premiums years ago and have enticed Unarco into taking this action. If the carriers would honor the policies that they wrote and for which they received premium payments, it has been estimated by counsel for Unarco that certainly all present claims, and perhaps all future claims, could be handled without the necessity for such a drastic action.

Moreover, the difficult financial position of several other present and former asbestos manufacturers who are defendants in this litigation has been caused directly by what seems to be a conspiracy of several large casualty carriers of failing to honor those policies for which they accepted premiums. Again, the ultimate victim is the claimant whose only source of relief is the tort liability litigation process.

5. Conclusion.—Simple steps that would prevent workers from developing occupationally-induced cancer are not being taken by the present Administration and questions have been raised about the efficacy of ever having a truly adequate system of regulation. Workers are not being warned; known health hazards are not being regulated. The worker's compensation system has utterly failed to provide any incentive for employers to control occupational diseases. Only the tort liability system has created enough pressure through the asbestos litigation and other similar litigation to cause a change in thinking in American industry and the way it treats the issue of occupational disease. I implore this Committee not to hinder that one effective avenue open to victims of occupational diseases.

Mr. **GORE**. Thank you very much. We will hold questions. Our second witness on this panel is Mr. William Bailey, senior vice president of the Commercial Union Insurance Co. in Boston. Welcome. We are sorry there has been such a long delay, but we are delighted to have you here. Please proceed with your statement.

STATEMENT OF WILLIAM E. BAILEY, SENIOR VICE PRESIDENT, COMMERCIAL UNION INSURANCE CO., BOSTON, MASS.

Mr. **BAILEY**. Thank you, sir. My experience in the insurance industry is relatively short and brief. I have only been a member of the staff at Commercial Union for 4½ years. Prior to that time, my experience has been as a plaintiffs' attorney. So I might point out that, rather than anybody misinterpret that I speak for an industry, I do not. In fact, frequently my views draw a great deal of consternation from the members of my industry who have been around it for 25 or 30 years. I also might note that I think as a result of the opening remarks of the gentleman from Mr. Baron's office that we are now going to get down to where the rubber hits the road. That is some of the nitty gritty issues that we are dealing with and how those, if anything, teach us lessons, which this committee is hoping will be learned by the Members of Congress who have the responsibility to help us do a better job of dealing with occupational and environmental diseases. In your letter, sir, you asked me to address three questions. One was the issue of current compensation schemes and their adequacy. Second, you asked me to look at the issue of causation and the dilemma we face today, as both science and the legal community try to relate cause and effect. And finally, you asked me to look at what possible recommendations are flowing out of what I think everybody is admitting is a monster problem not being dealt with terribly effectively. It also has to be said that it seems evident to me, from what discussions have taken place today, that we are dealing with two central problems. One is the period of latency, which in some instances is decades. We have heard of products which have caused human disease in which the latency period seems to be somewhat less. But clearly the problem which I think was highlighted by Dr. Selikoff's testimony is the race to establish cause and effect between the medical community and the legal community, and in some respects I think the legal community has clearly lost the race in the last several years. The second aspect of what I think you are dealing with is not the individual type claims which gave rise to a worker's compensation system, but rather to massive-dose claims where people are inhaling substances they do not realize will injure them someday, or they are swallowing mineral substances which only after certain periods of time may in effect produce disease if they are not killed from some other source. Yet the law is struggling to find a way, in a fair fashion, to deal with the demands of the clients of the Baron firms and the other plaintiffs' attorneys in the United States, and to find the resources whether it be from asbestos manufacturers or drug manufacturers of DES pills and their insurance carriers, to pay those claims. As a result, I think we find ourselves faced with the very issues you have asked be addressed, in terms of how effectively we deal with the problems today; and if we are not, what can we predict ought to be done about it. We clearly have a tremendous growth in claims in the last few years. But it has been noted earlier that one of the central issues about today's debate is, how much did we know years ago? Therefore, is one of our failures the inability to act upon knowledge in a way that could have prevented our problems today. In fact, from the standpoint of the plaintiffs' bar, one of the more touchy issues is how much did the asbestos companies know and intentionally fail to act in order to continue to derive profit, rather than invest money back into safer working conditions which might have kept thousands of people from evidencing disease. There is clearly some evidence floating around that there was more knowledge than was acted upon responsibly, because juries, on hearing that evidence, have given punitive damage awards, which are a part of the financial problem that the community is wrestling with. Just how often should punitive damages be awarded, and in how many instances based on the same failure of responsible action, or so alleged. In the meantime, scientific knowledge was accumulating to the point that by the mid-1960's, as Dr. Selikoff said, we the medical community, the legal community tried in some fashion to keep up by designing new methods of compensation through product liability. Clearly, I think the derivations of product liability, however, go back to the kind of one-on-one single-injury/single-defendant approach, and let's get together and decide between the individual who made a dangerous instrumentality and sold it for profit should be responsible for somebody who was a victim of the use of that particular product. Suddenly we found ourselves confronted with real claims. Dr. Selikoff, back in the sixties, was considered by many to be a scientist looking for a public cause to champion. By the late 1970s, as the claims for pure asbestos alone grew into the thousands, people began to take note: Irving Selikoff maybe was not a fool after all. We wish that more of us, especially those in my industry, had paid more heed to somebody who was warning about what was to come. At the same time, plaintiffs were finding, as has everybody included here today, that worker's compensation as a method for redressing their financial loss was totally unacceptable. It was not only inadequate, but in comparison with what you could get from the tort system, it just did not hold a candle. Let me give you some statistics which illustrate why lawyers would abandon going to a worker's compensation hearing when they could go to court. In 1977, the industry concluded a 5-year rolling study of product liability settlements, and asbestos won the prize: about $170,000 per average settlement. That obviously takes into account that there would be a dozen to two dozen asbestos manufacturers as defendants and, under recent theories of insurance liability, they may have as many as a dozen or two dozen insurance carriers at separate periods of time involved in the litigation, and that there may be in fact several of those parties who would prefer to settle out rather than litigate, and the numbers would accumulate rather rapidly.

Recent statistics from the asbestos industry bear out the fact that this number of $170,000 has not softened too much in recent years. The more startling statistic, I think, was to be the fact that the average cost to deliver compensation dollars to a victim in a product liability case is something between 25 and 30 cents on the dollar. In asbestos, it is $1.10 to $1.20 per victim. That means, by the time Mr. Baron and other plaintiffs' attorneys legitimately take a fee for taking on this case on a contingent basis, the victim is getting somewhere like one out of $4 or one out of $5 spent by the whole system to get the money in his hands. It has been estimated that many of the people who have already settled have been given amounts which will in no way compensate the true family loss and the economic loss they will experience if their condition can predictably be expected to deteriorate. So in some respects, the questions being discussed earlier with you, about who is going to pay for this system, are being answered in a sort of backhand fashion by the existing mechanisms responding rather than necessarily by foreplanning and thinking through what we should be doing. Asbestos also presents us with a very unique response in the legal system, because unlike the PBB's and the PCB's and the gases and other substances which may, after a latency period, cause disease, asbestos can be specifically detected. It is nonbiodegradable. Those little fibers sit in there, and they irritate, and they cause various kinds of responses in the body which cause pleural plaques or thickening or cancer of the chest cavity or cancer of the lung and so on. Because we can find the asbestos but we cannot find what else might have contributed to the victim's disease, we can at least name the defendant companies in the asbestos industry, and their insurers pick up the tab. But science has, as has already been noted, itself woefully failed to predict what other elements of the disease that we are paying for today are caused by sources that are nondetectable. The law has moved, I think, rather quickly. First we did adopt a theory of strict liability, which you mentioned earlier does not solve some of the problems we face but it was the best tort response, and at first that liability was limited to manufacturers who made a profit from distribution. The second response, in a string of cases which I cited in my submitted materials and will not try to discuss now, involved the development of insurance liability. But they raise a very interesting question which has yet to be debated, and this committee should be giving serious consideration to it. Insurance plays a very important role in society. It has been said, if you tried to eliminate us today, somebody would reinvent us tomorrow. People need to spread risks around and amongst themselves so that a catastrophe would not devastate an individual, a company, or an industry, especially one that is deemed to be socially necessary. But on the other hand, insurance has a business cycle and operates in certain business functional levels, and insurance can only absorb so much, especially when the problems to be absorbed date back decades, not within recent times when forecasting and financial relationships to premium and loss can be made. The debate that is taking place today surfaced for the first time at a recent Labor Policy Institute gathering in Williamsburg, at which the representatives of labor and some representatives from the legal community and the business community gathered to discuss human values and safety in the workplace environment and how we balance those two important considerations; I was flabbergasted at the extent to which some younger members of the labor movement today harbor very deep-seated resentment of American industry and the kinds of practices they perceive to be flagrantly exposing workers today to risks which 2 decades, 1 decade, 5 years from now will only surface as medical science can point out cause and effect. But they are demanding the right to know, and the labor movement has been very active in getting right-to-know statutes around this country in some of the major industrial States. What is the impact of the right to know? The impact of the right to know is where at least we can identify a manufacturer's current knowledge as to the exposures in his workplace environment or the exposures his products are causing, that manufacturer should not be given the opportunity to insulate himself from his liability by using somebody else's capital, meaning mine. That public policy question has never been debated. I suspect that a lot of it arises out of the insurance industry's terrible failure to explain what we do and how we do it, and how we socially respond to problems. I know that as a plaintiffs' attorney just 5 years ago, my average feelings about insurance companies was very low. For the most part, the usual comment that companies love to collect premiums and hate to pay claims is something that most good plaintiffs' attorneys learn right out of law school. But the truth of the matter is that insurance companies do, for the most part, attempt to respond in a sensible and fair fashion. But we seem today to be incapable of responding to the overwhelming numbers of claims that we are looking at in the environmental and occupational disease field. So we have come down to a debate today that is: who owes what, to whom, and when, and finally, who is going to decide. Is it going to be through a worker's compensation mechanism? Are we going to have every single asbestos claimant given the right to a judge and jury? And can the country afford that kind of rationalization of cause and effect liability and financial compensation? I do not believe we can. The figures float up and down, depending upon who is speaking about them and why. But for the most part, people seem to agree that there are somewhere between 15,000 and 25,000 lawsuits related to asbestos claims.

Lawsuits, since they involve several parties, may mean that we have somewhere in excess of 40,000 present plaintiffs in the legal system, all demanding several days in court, with a judge, a jury, and a court system tied up in the process to give them their due. We have seen, in the last 2 years, every one of Dr. Selikoff's worst predictions coming true, which is a frightening prospect because Irving said that we will see 10,000 excess deaths per year for probably the next two decades to 25 years. That is a quarter of a million people that we can just expect, by reasonable scientific methodology, will show up some day with a claim if they are alive to make it. The mortality rate among those who make claims is horrendous. Usually the life expectancy after a serious asbestos-related claim is made is less than a year. What about the economic impact of trying to litigate through the tort system every one of these claims. Prof. Paul MacAvoy of Yale University made his own study. I will admit that my company made it possible, but when we began debating some of these public policy questions, the first thing I kept hearing was, "You insurance companies are simply trying to bail out or to escape your liabilities. You have no evidence that the numbers you are talking about are not totally absorbable by the private capital of both industries, asbestos and insurance." When Professor MacAvoy undertook his study, using the available data, he concluded that on a present cash basis the value of the present asbestos deaths is somewhere between $38 and $78 billion. Unbeknownst to Professor MacAvoy when he began, Irving was already working with a Professor Robinson at the University of Syracuse, under a grant from the Department of Labor, and his study concluded, on a broader basis granted, that the problem in present value is somewhere between $78 and $118 billion. Well, the total capital of the insurance industry—we call it surplus—is somewhere in the range of $60 billion in the property casualty field, and the total capital of all the asbestos companies, including the conglomerates, is estimated to be somewhere around $29 billion. So that on a present cash basis, we are talking about substantial segments of American industry at risk financially, and I am afraid that the Unarco filing and the recent passing of a dividend for the first time in 40 years by J&M merely gives some factual support to the predictions that the economic impact of litigating these cases is going to be severe. We have another major issue which this committee clearly has been talking about today and must address, and that is the distinction between compensation for impairment and compensation for disability. Impairment is in fact already existing in thousands of claimants in the asbestos cases who are not disabled. In fact, a particular case recently tried in Shreveport, La., came out with a defense verdict, despite medical evidence of asbestosis, because the plaintiff admitted on cross-examination that on Sunday afternoon before starting trial Monday morning, he played 18 holes of golf. I recently observed Irv Selikoff read the X-rays of an asbestos worker who had visible asbestosis, and this gentleman runs 10 miles a day and swims a couple of miles on the weekends. These kinds of issues, as to who is deserving of compensation and at what point in their medical history, are not well being resolved by the courts of the defendant companies who are paying for the claims. The issue as I heard it presented today also is, At what point of time do you tell somebody he may be sick? I saw Irving specifically confronted with the question, Does he tell this gentleman, "You may be sick," or does he simply point to the X-ray and say, "That is pleural plaque. That is some thickening on your lungs. But if you feel fine, that is good, you are fine. But you should be aware and you should monitor your progress, and you should come back for regular surveillance of any deterioration in your condition." You see, the legal system again throws the poor victim into a catch-22, as was raised earlier. One of the parties whose X-ray was taken as I sat there observing it is the president of the local Asbestos Workers Union in Boston, Mass., working out of one of our shipyards. He has already been advised by his attorney that—

> Since Irving has read your X-ray, and you stood there and watched him point to your X-ray and say, "See that. That's pleural thickening," the statute of limitations has begun to run against you, because the statute says "if you knew or should have known."

Why is that such a catch-22? Unfortunately, the gentleman is impaired to some minor degree, but he has not suffered any economic loss at all, and the tort system compensates economic loss. We may use actuaries and we may forecast that decades into the future, based on life expectancy, but the issue that was confronting that gentleman is, If I do bring a lawsuit today, what evidence do I have to give a jury that I have a financial loss for which I should be compensated? Yet the system is very loath to start compensating today for projected potential financial losses, not based upon anything more than those kinds of judgments. What is required? You asked for recommendations.

One side of the system says that we could eliminate a tremendous amount of the current waste and the unfairness and the time delays in compensating victims and the methodologies by which their families can be taken care of by enhancing and improving the existing workers' compensation system. There is much merit to that. I think that Congressman Miller, for all the debate he is causing amongst insurance carriers, is attempting to address whether or not in the occupational disease field, some kind of a Federal worker's compensation standard, with contribution from insurance, from manufacturers and maybe others. We certainly feel the Government ought to be contributing, where it would be a tort third-party defendant in the shipyard cases, and maybe someday even tobacco will be required to pay for its contribution to these problems. But those parties could certainly pool up quite a bit of funds to absorb many of these occupational diseases. But you have an even larger question, and that is the environmental claim. Where do they turn? Where does the person turn who lived across the street from the shipyard, or the secretary who worked in the shipyard but has a more difficult time of product identification, especially since she never went out into the ships and looked at the bales to see whether it was JM or Pittsburgh Corning, Unarco, or somebody else who was delivering products to the particular shipyard. Maybe the classic case in all of this problem, in terms of dealing in torts, is Steve McQueen. Steve McQueen was in the U.S. Navy. He was also in the U.S. merchant marine. Steve McQueen took great pleasure in riding a motorcycle through the hills of California, where asbestos is a plenteous raw mineral, and a person riding a motorcycle in one afternoon would be as heavily exposed to asbestos dust chewed up by the bikes in front of him as a shipyard worker. Asbestos is the State rock in the State of California. In fact, in California today, if you go into a public park, you have to drink water out of bottles, because the State of California will not let you drink natural water flowing down the streams because the stream beds have asbestos rock in them, and you may develop asbestosis from it. Steve McQueen also smoked rather heavily, and curiously, the third largest cohort of asbestos victims in the country are brake-lining mechanics. Why? Because in brake shops what we do is, we give them a hose that blows air, and they blow the fibers all over themselves and their coworkers. If we would simply reverse the flow of air and provide a suction, we could put the asbestos into a plastic bag and dump it somewhere so that it can cause less injury. Nevertheless, McQueen used to drive fast cars on racetracks, where he would pull into pits where they were changing brakes as well as wheels. Steve McQueen died of mesothelioma. His lungs were looked at by Dr. Selikoff. That is not much comfort, when Mrs. McQueen is looking around for a group of defendants to bring into court. Who pays, on what basis, on what scientific evidence, and on what legal requirements? So many of those questions were debated and are not resolved by us this afternoon, as the previous speaker said, that I can only point out the particular practical problems we are living with today. We are wasting an enormous amount of money by spending it on a system that was not designed to deal with massive blocks of claims at the end of long-term latency periods. The tort system was essentially a one-on-one resolution mechanism which we inherited from our British forebears. We have done a lot of tinkering with it then, to say the least. And I might add that we have done enough tinkering that the British are now in a turmoil. A television producer just put a half-hour program on

British television about the aspects of their health problems relating to asbestos. Thousands of workers have walked off the job in England because in the United States a plaintiff's widow got $1,250,000, and in England the widow received 400 pounds. The systems just did not seem to balance one against the other. One last aspect of the tort system's ineffectiveness and inappropriateness in dealing with this problem: We need to talk more about prevention and the dedication of substantial resources to the scientific discovery of means to treat people to prevent them from getting sick. Dr. Selikoff talks about Dr. Bakasy's research into immunocompetence and immunosuppression and the potential predictability and treatment of people who could be kept from getting asbestos-related disease. But legal systems and judges are not set up to dedicate a certain amount of the plaintiff's award for research into prevention. That can only be done by the kinds of programs which legislatures are empowered to enact and which, in some fair way, the participants could acknowledge their responsibility to contribute to the result.

[The prepared statement of Mr. Bailey follows:]

REMARKS OF WILLIAM E. BAILEY, SENIOR VICE PRESIDENT, COMMERCIAL UNION INSURANCE COMPANY TO THE HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
AUGUST 12, 1982

In 1982, Commercial Union Insurance Company, one of this country's largest property and casualty insurance companies, will process over 750,000 claims. Of that number, something less than 2% of the total will involve such highly disputed issues or otherwise lack clear and easy resolution that they will be placed in litigation. These lawsuits will cause the company to spend close to $40 million engaging attorneys to litigate the unresolved issues in the courts.

Despite this, one cannot attend a conference of insurance claim executives or trial lawyers without the conversation inevitably turning to a discussion about the impact of the environmental and occupational disease claims on the entire tort system. At issue is a virtual revolution in the public policy debate over "Who? owes What? to Whom? and When?" Only recently have we added to these widely discussed and hotly debated issues the final question, "Who ought to decide?"

Nearly two decades ago, Dr. Irving J. Selikoff and others began warning us that the use of asbestos in this country would someday begin to cause vast public health problems. His projections of the number of "excess deaths" from exposure to asbestos dust in the workplace and in the environment were treated by many as the musings of a scientist looking for a cause. By the late 1970's, the numbers of asbestos-related disease claims and the medical evidence of ultimate asbestotic disease arising out of exposure to asbestos dust caused us to begin a most painful and wrenching re-examination of the predictions which Dr. Selikoff had made.

In a landmark decision in 1974, a Texas federal judge ruled that asbestos was inherently dangerous and that manufacturers had failed to warn users of the known hazards and potential health consequences. At the same time, increasing numbers of individuals using asbestos products in the workplace sought medical evaluation of their various maladies. They were advised that they had diagnosable evidence of the presence of asbestos-related disease - either asbestosis, mesothelioma, or bronchogenic carcinoma. As a result, they sought redress through the tort system by bringing product liability lawsuits against the manufacturers and distributors of asbestos.

At a recent seminar on the workers' compensation system convened by the National Association of Independent Insurers and held at Orono, Maine, an entire day was devoted to asbestos-related disease claims. One of the most interesting aspects of that day-long session was the general agreement among the seminar participants that those who have an asbestos-related claim totally ignore or side-step the workers' compensation remedy, in order to take advantage of the more fruitful financial opportunities available through the tort system via product liability lawsuits. In essence, the participants seemed to concur that the answer to the question "Who ought to decide?" has already been made -- but not necessarily by means of a rational and logical decision-making process. Apparently, the decision to move in the direction of seeking tort relief has been almost entirely predicated upon a rejection of the other alternatives: workers' compensation, or various Social Security programs.

The substantive issue widely debated today is not the past fortunes or misfortunes of asbestos-related claim problems or their current impact upon our legal system. It is rather, the broader question of how we, as a nation, will deal in the future with what can already be predicted as a vast array of environmental and occupational disease claims. The prospects, based upon past experience, are not encouraging. The predicament already uncovered calls for innovative, creative solutions before we dig deeper and deeper into a morass of ineffective and waste-ridden compensation mechanisms.

Of particular importance to the insurance industry in all of this wide-ranging debate over the expansion of the tort system is the role of private versus public capital in terms of the various obligations to the injured parties. There already exists a separate and distinct subculture in the legal community of interested parties and their lawyers who have widely varying views and dispositions on this particular issue.

Quite possibly, one of the most troublesome issues in the asbestos-related litigation is the determination of "cause" and "effect" as it relates to both who is liable - and when. In the course of a single day, the average citizen is exposed to a variety of substances in the workplace and in the environment which he inhales, ingests, or absorbs. In addition, the average citizen walks through airways increasingly loaded with radio waves and various forms of radiation exposures. The sum and substance of the legal debate over the impact of these everyday events is the question "When does liability accrue and against whom for the long-term impact of breathing, swallowing, absorbing or simply walking through a large city?"

During the 1970's, two unrelated but yet significant events converged. First, the legal community began to move away from the concept of "fault" in determining tort liability, especially with regard to the relationship between "cause" and "effect". Second, the medical community substantially enhanced its capacity to authoritatively pronounce its determination of causation in terms of various human illnesses and diseases. As a result, while science was becoming increasingly capable of telling people not just that they were sick, but how they became sick, the legal community was finding that question to be less and less determinative of who ought to pay for the ultimate result. In effect, based upon new techniques of discovery and evaluation, science was advising interested parties that, "The deceased died from cancer caused by...." rather than, "The deceased died from cancer." In the meantime, the legal community decided to opt in favor of ascribing responsibility to all of those who may have contributed to the particular medical problem.

We began this new trend with an unusual but interesting case, Summers v. Tice [1/], in which three hunters went into the woods and only two walked out alive. It was clear from all of

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[1/] Summers v. Tice 33 Cal2d 80, 199 P. 2d 1 (1948).

the evidence that one of the survivors had killed the decedent, but neither one could be conclusively proven as having caused his premature and rather sudden demise. Therefore, faced with two equally and potentially liable actors who refused to own up to the responsibility for the event, the court chose to hold both of them jointly and severally liable in a suit for damages brought by the widow.

The next case in this interesting course of legal etiology was Hall v. E. I. duPont de'Nemours and Co., et al [2]. This was a case in which the young plaintiff's hand was blown off by a blasting cap negligently left on some railroad tracks. Since the evidence regarding the particular manufacturer was obviously destroyed in the process of injuring the plaintiff, the court found that all of those who had similarly manufactured and distributed blasting caps ought to be jointly and severally responsible for placing a dangerous instrumentality in the stream of commerce.

The final capstone to this series of legal liability cases was a California decision, Sindell v. Abbott Laboratories, Incorporated.[3] There the manufacturer of dietholstilbestrol (DES) pills was held accountable to the plaintiff despite the lack of specific evidence that a particular manufacturer sold the pills which caused the alleged disease in the consumer's progeny.

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[2] Hall v. E. I. duPont de'Nemours and Co., et al F. Supp., 353 (E.D., N.Y., 1972).

[3] Sindell v. Abbott Laboratories, Incorporated, et al. 26 Cal3d 588, 607 P. 2d 924 (1980) cert. denied 449 US 912 (1980).

Following the rationale of the earlier cases, the California Supreme Court held that all those manufacturers who placed DES pills in the stream of commerce were liable to the plaintiff according to their pro-rata share of the market. Science had produced evidence that the ingestion of DES pills caused the children born thereafter to develop the various diseases that plaintiffs had alleged. In response to these claims, the courts decided that it was no longer necessary to prove who had in fact caused the plaintiff's alleged injuries. Rather, it was only necessary to show that the particular defendant was engaged in the business of making and selling the products which made the defendant at least one of the identifiable, possibly culpable, parties! In all of these scientific/legal debates, no one has yet bothered to question, the implications of the fact that science cannot, in fact, identify all of the other potential contributors to the plaintiff's particular medical problem.

Dr. Selikoff and Dr. William Nicholson have recently published a paper as part of a Department of Labor study on asbestos-related disease in America. They estimate that as of December 31, 1980, there were some 21 million living Americans who have been exposed to asbestos dust to the extent that they are presently "at risk" of developing an asbestotic disease. Dr. Selikoff, as a good scientist, and like all of those in his profession, is interested not only in treating those who become sick, but also in programs of prevention where sickness and disease can be avoided.

Unfortunately, recent legal decisions approach these questions from an entirely different perspective. We are presently arriving at legal standards of liability which are predicated upon mere exposure to a product and an assessment of the potential risk of bodily injury rather than a clear-cut medical determination of the presence of disabling disease which is the result of those exposures.

In the first major legal decision on this issue, *INA v. 48 Insulators, Inc.* [4], the courts decided that exposure to asbestos dust was not only the basis of the asbestos manufacturer's liability, but also passed that liability on to those insurance companies who had issued product liability policies to those defendant manufacturers and distributors *at any time* in the past. The legal conclusion was predicated upon the medical testimony that inhalation of asbestos fibers immediately caused "bodily injury". The Fifth Circuit Court of Appeals reached a similar conclusion in *Porter v. American Optical Company* [5], which virtually ratified the *INA v. 48* rationale without an independent analysis of the key issues raised in *INA v. 48*.

However, in the next major coverage opinion, *Keene v. INA* [6], decided by the U.S. Circuit Court of Appeals for the District of

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[4] *Insurance Company of North American v. Forty-Eight Insulations, Inc., et al*, 633 F.2d 1212 (6th Cir. 1980)

[5] *Porter v. American Optical Corp., et al*, 641 F.2d 1128 (5th Cir., 1981), *cert. denied*, ____ US ____, 102 S. Ct. 686 (1981).

[6] *Keene Corp. v. Insurance Company of North America, et al*, 667 F.2d 1035 (D.C. Cir., 1981), *cert. denied*, ____ US ____ 50 US.L.W. 3711 (March 8, 1982)

Columbia, the court went further than any previous case to establish insurer responsibility for a manufacturer's product liability. The court adopted a new and unique "triple trigger theory" of liability which made insurance carriers liable on any basis, including exposure, "exposure in residence" and manifestation.

Just as some observers and analysts were pronouncing that the coverage issue was a "closed case," the First Circuit Court of Appeals sent a virtual shock-wave through the entire legal community in Eagle-Picher v. Liberty Mutual Insurance Company. 7/ That court concluded that "disease" is not a disease until it has manifested itself to the point that it is medically diagnosable. In a particularly significant footnote, the court cited a decision written by Judge Learned Hand, one of our most respected legal scholars. In that opinion, which addressed this very same issue decades ago, Judge Hand wrote,

> "Few adults are not diseased, if by that one means only that the seeds of future troubles are not already planted; and it is a common place that health is a constant warfare between the body and its enemies: an infection mastered, though latent, is no longer a disease, industrially speaking, until the individual's resistance is again so far lowered that he succumbs." (Grain Handling Co. v. Sweeney. 102 F2d 464, at 466, (2d Cir., 1939), cert. denied, 308 US 570 (1930)).

7/ Eagle-Picher Industries, Inc. v. Liberty Mutual Insurance Company, et at, ___F2d___ (1st Cir., June 30, 1982) (reported below 523 F.Supp. 110 (D. Mass., 1981)).

This has placed before the Supreme Court of the United States a clear question, "When do we determine liability?" Is it based upon mere exposure to conditions which can produce sickness, but which the body may, through normally effective protective mechanisms, overcome? Or, is it based upon a medical evaluation and determination that a person is truly sick for whatever reasons and is entitled to compensation? The essential issue which has yet to be addressed is which theory -- exposure or manifestation -- ultimately will serve the greatest societal goals and objectives.

A critical issue from the standpoint of the worker is encompassed in the "Right to Know" laws which the labor movement has actively supported around the country. Workers not only want to know now what might someday make them sick from existing conditions in the workplace, they want to know what is being done to correct those conditions - and what incentives people have to do so. Insurance holds very little interest to those whose claim might have been prevented by more investment in safety than in premiums for increased policy limits.

In the past few years, we have witnessed an enormous growth in the numbers of asbestos-related claims in the tort system. Some estimate the number of lawsuits to be 15,000; others say 25,000. The significance is not the difference between these two estimates, but the fact that so many people have found resort to legal redress in the courts the only means by which they can be satisfactorily and fairly treated. Based upon what we already know about the future of occupational and environmental disease claims, we are shortly going to be confronted with a major national crisis as we attempt to cope, through the litigation process, with every alleged claim.

According to a five-year study completed in 1977 by the Insurance Services Office, an arm of the insurance industry, the average asbestos settlement was $170,000. However, the same study published an even more startling and troubling figure. The average loss adjustment expense, which includes attorney's fees, medical and other expert witness fees and related expenses, was about $1.10 to $1.20 for every dollar delivered to the plaintiff. Since the plaintiff's attorney is compensated out of the gross amount paid by the defendants to his client, it does not take a mathematical genius to determine that the tort system is presently costing three to four dollars for every dollar being delivered to an asbestos plaintiff.

Drawing upon these figures as the basis for his calculations, Professor Paul MacAvoy of Yale University concluded that the economic cost of the asbestos health problem in this country is likely to be between 38 and 78 billion dollars. Another study, recently published by the Department of Labor, contains estimates that the economic cost of the asbestos health problem in this country will be 78 to 118 billion dollars. What both of these studies point out is the inadequacy of the private capital of both those insurance and asbestos companies already enmeshed in the litigation to pay the present costs associated with the country's past and present use of asbestos.

There are two essential questions which need to be more openly discussed and debated: First, can we devise a better system for compensating occupational and environmental disease claims, beginning with asbestos claims but not limited to that problem, rather than attempting to resolve these issues through the existing tort mechanisms? Second, should the private capital of the manufacturers, distributors and their insurers be the only resources for funding these compensation awards?

A variety of arbitration proposals have been floated over the past several years in an attempt to find a more efficient and effective means of dealing with asbestos claims. To date, however, these proposals have not attracted the attention and participation of the major parties who would have to agree to participate in order to make them effective. Now that one major asbestos manufacturer has filed for protection under Chapter 11 of the Bankruptcy Act and another has admitted sufficient financial concerns about the future to the point of not paying a dividend for the first time in the last forty years of its corporate history, attitudes towards developing a successful arbitration program may change rather significantly.

The courts are poised on the verge of resolving the question of who ought to pay! The government specified the use of asbestos in the World War II shipbuilding program and had virtual control over the workplace. The largest single cohort of occupationally-related asbestos claimants are shipyard workers. Heretofore, the United States Government has successfully relied upon the doctrine of sovereign immunity to remain immune from the asbestos litigation. This immunity may be substantially eroded in the next year or two, principally as a result of the litigation over who ought to bear the liability for Agent Orange claims.

The other entity which nearly everyone agrees substantially contributes to a variety of the health problems in this country, most notably lung cancer, is the tobacco industry. So far, it has enjoyed a surprising degree of legal immunity. We are told by the medical experts that when compared to the general non-smoking population, a non-smoking asbestos worker is ten times more likely to develop lung cancer but an asbestos worker who smokes has a fifty-two times greater chance of developing lung cancer. Thus far, the asbestos companies and their insurers have not sought contribution from the tobacco industry in the asbestos litigation.

During a recent nationally televised program on the subject of tobacco consumption, it was estimated that the annual health care costs for tobacco-related diseases is somewhere between 8 and 9 billion dollars. Moreover, the annual loss of productivity to American industry from illness or death from tobacco consumption was estimated to be 28 to 30 billion dollars. One wonders why our Government, which has seen fit to pay millions annually in agricultural subsidies to the tobacco industry, has not seen fit to dedicate more of its resources to the cause of prevention by warning the citizens of this country about health hazards of smoking.

It has been said that during the latter part of the 1970's medical science surged ahead rather dramatically on a variety of technological fronts while our legal system, try as it might, has not kept pace. We can now identify larger numbers of individuals and the causes of their sickness, disease, or even death, but we do not have the resources in the number of judges, clerks and courtrooms needed to litigate every one of these new environmental and occupational disease claims. The only thing we do seem to have in definite abundance is lawyers! The legal profession has reaped a huge harvest of clients from the new medical technology. What needs to be asked, as we look ahead at the decade of the eighties, is whether or not we will really serve the long-term best interests of this country in compensating the occupational and environmental disease victims both fairly and adequately by requiring them to resort to litigation.

To date, these broad and long-range social policy questions have been resolved by the judiciary in the context of individual lawsuits involving very few parties. Nevertheless, the rules they have enunciated have broad application with enormous attendant costs. Until the legislative bodies of this country step forward and address these troubling issues, then we will continue "to do business as usual" - but not very effectively or efficiently.

ASBESTOS

A SOCIAL PROBLEM

Commercial Union Insurance Companies
Environmental Issues Task Force
May 12, 1981

ASBESTOS

A SOCIAL PROBLEM

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I. INTRODUCTION

The past decade has witnessed increased attention to the hazardous effects of products and substances considered essential to industrial and technological progress. This has been particularly true with asbestos, a mineral whose unique characteristics permit its use in over 3,000 industrial, commercial and personal products.

Despite the useful product applications which have been made of asbestos, a substantial body of medical evidence demonstrates that there are harmful health effects inherent in its use. Exposure to asbestos is known to be a causative or contributing factor in certain respiratory and gastrointestinal diseases. Though the health effects linked to asbestos exposure have been known since early this century, failure and unwillingness to take necessary measures to control its hazardous tendencies have led to a medical situation in which as many as 5.6 million individuals may die from an asbestos-related disease or from complications associated therewith, and in which millions of others may be disabled.

Current means of compensating the victims of asbestos for their physical, economic and emotional losses are ineffective, and have helped create a social problem of crisis proportions. Because workers' compensation and public assistance programs fail to provide adequate benefits, claimants have turned to the tort litigation system in record numbers. The estimated number of cases filed to date ranges as high as 12,000, involving same 25,000 plaintiffs and more than 260 defendants.[1] The demands placed on the courts have been substantial. The judicial process has been impeded in many jurisdictions, affecting asbestos victims and other litigants alike. With the likelihood that many thousands of additional claims will be filed during the next 25-30 years, it is becoming increasingly apparent that our judicial system will be incapable of providing an effective means of relief for those injured by asbestos-related diseases.

Reliance upon tort litigation as a means of compensating asbestos victims has had serious ramifications that extend beyond the parameters of the judicial system. The complexity of cases and the fact that they often involve a large number of defendants and third-party defendants increases the time and costs of litigation. In an effort to provide compensation to deserving claimants, courts have often fashioned new concepts of law. This recent expansion of the boundaries of insurance and product liability law has confronted defendants with unprecedented levels of liability.

These factors place severe burdens on those responsible in the first instance for compensating asbestos victims--the members of the insurance and asbestos industries. Viewed

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1. Telephone interviews of Michael P. Mealey, Managing Editor, ASBESTOS LITIGATION REPORTER, March 18, 1981 and March 23, 1981.

objectively, the proliferation of asbestos claims and the costs associated with their administration, defense and payment jeopardizes the financial stability of many of these companies. The consequences of this problem are not, however, confined to these two industries. Rather, continued pursuit of these matters through the traditional tort litigation process may well cause a severe contraction of our insurance system, with resulting dislocations in our economy as a whole.

This report examines the nature and scope of this pervasive and immediate social problem. It indicates the inability of traditional methods to appropriately compensate asbestos victims and demonstrates how continued resort to such methods creates problems of a broader dimension. The report concludes that the nature of the problem necessitates federal legislative action to devise and implement a system that adequately and equitably addresses the needs and interests of asbestos victims, the asbestos industry and insurance companies. It is the expectation and belief of the authors that this report succeeds in providing a basis for understanding this serious and important problem, and that it helps to establish a foundation upon which a proper solution can be developed.

II. BACKGROUND: ASBESTOS AND CONSEQUENCES OF ITS USE

The substance that has caused the present situation is "asbestos," the generic name for a group of hydrated mineral silicates that can be separated into relatively soft, single fibers.[2] Due to its nonflammability at even extremely high temperatures, its ability to inhibit certain types of chemical reactions, and its flexibility and tensile strength, asbestos is particularly suitable for a variety of industrial, commercial and personal uses.[3] (See Appendix A)

A. HISTORY OF ASBESTOS USE

Because of its unique characteristics, asbestos has been used by man since antiquity. However, though extant documents record its use by the ancient Greeks and Romans, it has only been during the past century--particularly since World War II--that asbestos has been extensively relied upon for a large number of commercial and industrial purposes. All

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2. Asbestos minerals can be classified according to two major categories:

    a) the serpentines, which includes chrysotile; and
    b) the amphiboles, which includes crocidolite, actinolite-tremolite, amosite and anthophyllite.

3. It is possible that as many as 3000 different products in daily use throughout the world contain some asbestos. These include heat-resistant textiles, reinforced cement, special filters for industrial chemicals, thermal insulation, floor tiles, gaskets, automotive brake linings, concrete water pipes and various types of coatings and compounds. The heat-resistant properties and fibrous structure of asbestos make the product uniquely desirable for fireproofing and insulation.

told, more than 30 million tons of asbestos have been consumed in the United States since 1890, with perhaps as many as 27 million tons having been consumed since 1940.[4]

B. HEALTH HAZARDS INHERENT IN ASBESTOS USE

The fact that asbestos is hazardous to human health was recognized quite early. It is reputed that in the first century both Pliny the Elder and Strabo wrote of a sickness of the lungs in slaves whose occupation was the weaving of asbestos into cloth. However, the relationship between asbestos and respiratory disease remained largely undiscovered and unknown until this century. Although the period between 1906-24 saw the publication of a number of reports documenting the association between asbestos and pulmonary disease, the seminal point occurred in 1930 when Dr. E.R.A. Merewether and C.W. Price, respectively, medical and engineering inspectors of factories in Great Britain, presented a report to Parliament establishing the fact that "inhalation of asbestos dust over a period of years results in the development of a serious type of fibrosis in the lungs."[5]

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[4] Published statistics indicate that 24,827,500 tons of asbestos were consumed in the United States between 1890-1969, including 16,607,000 tons between 1940 and the latter date. See Selikoff, Asbestos-Associated Disease, PUBLIC HEALTH AND PREVENTIVE MEDICINE 11th ed. (1980), at 595 (Table 13-9).

Between 1971-75, apparent consumption of asbestos fiber in the United States was slightly less than 4 million tons, with a similar volume of consumption anticipated for the 1976-79 period. See U.S. Department of Health, Education and Welfare, ASBESTOS: AN INFORMATION RESOURCE (1978), at 9-10.

The United States Bureau of Mines has estimated that this country's demand for asbestos in the year 2000 will range between 1-1.8 million tons. U.S. Department of Interior, MINERAL FACTS AND PROBLEMS (1975).

The early studies were, with the exception of some isolated and largely-ignored reports, concerned primarily with the effects of the inhalation of asbestos fibers among individuals exposed to asbestos in large quantities, such as miners and workers in textile and other manufacturing facilities. In the mid-1960's, publication of epidemiological studies by a group at New York's Mt. Sinai School of Medicine documented the relationship between exposure to asbestos by asbestos insulation workers and various respiratory diseases.[6] The latter studies demonstrated not only the widespread occurrence of pulmonary fibrosis among such individuals, but also the relatively high incidence of certain lung cancers.

C. BIOLOGICAL EFFECTS OF ASBESTOS USE: ASBESTOS-RELATED DISEASES

The medical evidence that has accumulated during this century clearly indicates that inhalation of asbestos fibers leads to histological changes that can result in various severe and debilitating pulmonary diseases.[7] Because the effects of excessive inhalation of asbestos fibers are time and dose-related, certain of these diseases may develop only after the inhalation of substantial amounts of asbestos over a substantial period of time. Others require only a comparatively small dose for their occurrence. The long latency periods that are characteristic of the diseases--that is, the period between initial exposure to asbestos and the actual exhibition of the first clinical signs or symptoms of disease--indicates that the disabilities presented today are reflective of conditions that might have existed as long as 30, 40, or 45 years earlier.

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[5] Merewether and Price, Report of Effect of Asbestos Dust on Lungs and Dust Suppression in the Asbestos Industry. London, H.M. Stationery Office (1930).

[6] Selikoff, Churg and Hammond, Asbestos Exposure and Neoplasia, 188 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 22 (1964).

Selikoff, Churg and Hammond, The Occurrence of Asbestosis Among Insulation Workers in the United States, 132 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES 139 (1965).

There are three primary diseases known to be associated with the inhalation of asbestos fibers. These are asbestosis, mesothelioma and bronchogenic carcinoma. Though similar in many respects, each has its unique charicteristics:

1. ASBESTOSIS

   A chronic respiratory ailment, asbestosis is the most common of the asbestos-related diseases. Characterized by a fibrosis or scarring of the lungs, it has an average latency period of 17 years. Its signs or symptoms include breathlessness on exertion, a dry cough, tightness or pain in the chest area, decrease

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7. When asbestos fibers are inhaled, a percentage of the fibers smaller than five microns will reach the portion of the lungs where gas exchange occurs. As part of the body's defense mechanism, the fibers may become encapsulated in a fibrous scar tissue and, when sufficient scarring has developed, the capacity of the lungs to exchange gases will be diminished so as to cause shortness of breath. See Dreessen, Dallavalle, Edwards, Miller and Sayers, A Study of Asbestosis in the Asbestos Textile Industry, PUBLIC HEALTH BULLETIN NO. 241 (continued on next page)

in lung volume and flow, and eventual clubbing of the fingers. A cumulative disease, asbestosis is generally found among individuals exposed to asbestos fibers on a regular, prolonged basis. Although asbestosis can be disabling, it is neither malignant nor necessarily fatal. However, the debilitating nature of asbestosis is such as to increase the likelihood of death from other medical complications.

2. MESOTHELIOMA

   A malignant tumor occurring in the lung or abdominal cavity lining, mesothelioma is extremely rare in the general population but common among workers exposed to asbestos. The disease is characterized by shortness of breath and pain in the chest wall or abdomen. Its latency period averages between 25 and 40 years. Mesothelioma is thought to be invariably fatal, with death generally occurring within 2 years of onset. Unlike asbestosis, it is not cumulative, thereby requiring a comparatively small dose of asbestos fibers to produce the malignancy.

3. BRONCHOGENIC CARCINOMA

   A malignant tumor generally orginating in the upper portion of the lungs, bronchogenic carcinoma is characterized by chest pain, a frequent and intense cough, and blood-streaked sputum coughed-up from the lungs. The disease has an average latency period of 15-25 years and, like mesothelioma, is usually fatal. Though bronchogenic carcinoma is commonly found among asbestos workers, its primary causative agent may be cigarette tobacco smoke rather than asbestos.

In addition to the respiratory diseases for which asbestos is a known causative agent, it is also associated with an increased risk of cancer of the esophagus, larynx, oropharynx, stomach, colon, rectum and kidneys. The incidence of these cancers

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ix (1938); Selikoff, Asbestos-Associated Disease, PUBLIC HEALTH AND PREVENTIVE MEDICINE 11th ed. (1980), at 571-75. Some time after breathing in the same fibers which cause scarring of the lung tissue, a malignant tumor may develop.

is statistically smaller than the occurrence of the asbestos-related pulmonary diseases.[8]

D. ASBESTOS-RELATED CARCINOMAS AND THE SYNERGISTIC EFFECTS OF ASBESTOS AND OTHER SUBSTANCES: THE CASE OF CIGARETTE TOBACCO SMOKE

The existing medical evidence is not clearcut as to the prime causative agent of bronchogenic carcinoma. Though valid epidemiological studies indicate a relatively high incidence of lung cancer among persons regularly exposed to asbestos,[9] many such studies also show that a high proportion of those who have sustained such cancer were also regular cigarette smokers.[10] Moreover, considerable evidence exists to the effect that cigarette tobacco smoke alone is sufficient to cause lung cancer.[11] This evidence is so strong, that the only party actually denying that smoking causes cancer is the tobacco industry itself.[12]

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[8] See Selikoff, Hammond and Seidman, Mortality Experience of Insulation Workers in the United States and Canada, 1943-1976, 330 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES 91 (1979).

[9] Id.

[10] See, e.g., Hammond and Selikoff, Relation of Cigarette Smoking to Risk of Death of Asbestos-Associated Disease Among Insulation Workers in the United States, 8 IRAC SCIENCE PUBLICATIONS 312 (1973); Hammond, Selikoff and Seidman, Asbestos Exposure, Cigarette Smoking and Death Rates, 330 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES 473 (1979); Selikoff, Seidman and Hammond, Mortality Effects of Cigarette Smoking Among Amosite Asbestos Factory Workers, 65 JOURNAL OF THE NATIONAL CANCER INSTITUTE 507 (1980).

[11] See e.g., U.S. Department of Health, Education and Welfare, SMOKING AND HEALTH. REPORT OF THE ADVISORY COMMITTEE TO THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE (1979). Statistics set forth in this report indicate that cigarette (Continued on next page)

Though contrary arguments may be made as to the primary causative agent of lung cancer among persons exposed to asbestos, on a statistical basis it appears that the two independent causes interact positively. In the general population cigarette smokers have a 10-to 15-times excess risk of contracting lung cancer than do non-smokers.[13] A study conducted jointly by the American Cancer Society and New York's Mt. Sinai School of Medicine has observed an 8-times excess risk of lung cancer among asbestos workers who smoke than smokers in the general population, and an excess risk that was

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tobacco smoke is related to 80,000 deaths per year from lung cancer, 22,000 deaths from other cancers, up to 225,000 deaths from cardiovascular disease, and more than 19,000 yearly deaths from chronic pulmonary disease. Smoking accounts for an estimated $5 to $8 billion in yearly health care expenses. Annual costs for lost productivity, wages and absenteeism caused by smoking are estimated at $12 to $18 billion. Id. at 2.

Dr. Alton Ochsner, founder and director of the Ochsner Clinic in New Orleans and a former president of the American Cancer Society, has publicly stated that all but 4% of the individuals who will die this year from lung cancer will do so due to the inhalation of cigarette tobacco smoke. Press Conference dated September 17, 1980, Los Angeles, California.

[12] The relationship between cigarette smoking and lung cancer has been sufficiently established to permit some physicians to conclude that "without cigarettes, the disease would virtually disappear." Neptune, Piro and Straus, Primary Carcinoma of the Lung, CANCER. A MANUAL FOR PRACTITIONERS 5th ed. (Boston: American Cancer Society, Massachsuetts Division, Inc., 1978), at 132.

[13] U.S. Department of Health, Education and Welfare, ASBESTOS: AN INFORMATION RESOURCE (1978), at 31.

92-times greater when compared with the general population of non-smokers.[14] This clearly supports the contention that the combined effect of cigarette smoking and asbestos exposure is significantly greater and more dangerous than the respective effect of each.[15]

Exposure to substances other than cigarette tobacco smoke may similarly combine with the inhalation of asbestos fibers to cause certain cancers. Current thinking among cancer specialists holds that the disease is almost never caused by a single factor. Rather, it is generally believed that one factor must be present to initiate runaway cell growth, and another to sustain and promote it. With the Occupational Safety and Health Administration having recently issued a list of almost 200 substances that are potentially carcinogenic, it is entirely conceivable that greater medical sophistication and the opportunity to conduct future studies will one day demonstrate a synergistic effect between one or more of these substances and asbestos as causes of cancer.

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14. Selikoff, Hammond and Churg, Asbestos Exposure, Smoking and Neoplasia, 204 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 104 (1968).

15. Although present statistics indicate that the inhalation of asbestos fibers and cigarette tobacco smoke has a synergistic effect only with respect to incidences of lung cancer, cigarette smoking, because it causes a variety of other pulmonary illnesses, increases the risk of death from complications associated with asbestosis.

    There is little evidence establishing a causal link between cigarette smoking and the frequency of pleural mesothelioma among individuals exposed to asbestos, and virtually no evidence suggesting that smoking increases the risk of peritoneal mesothelioma.

III. THE SCOPE OF THE PROBLEM

The variety of uses for which asbestos has been an essential ingredient attest to its social worth. Considerable commercial and industrial progress during the past forty years has in part been attributable to use of asbestos. However, the hazardous propensities of asbestos have left a legacy that vastly outweighs its practical benefits. The ramifications of this legacy extend beyond the millions of victims of asbestos-related diseases, though their story is central to the situation. What has resulted and what is continuing to unfold is a social problem whose very dimensions affect the stability of American society.

A. THE VICTIMS OF ASBESTOS USE

1. WORKPLACE VICTIMS

The impact of asbestos on society is first observable in the case of past and future victims of asbestos-related diseases. The incidence of the various asbestos-related diseases has been most marked among individuals occupationally-exposed to asbestos. Though precise numbers are not available, the National Institutes of Health has estimated that between 8 and 11 million individuals have been occupationally-exposed to asbestos since the early 1940's.[16] Included in this number are some 4.5 million shipyard workers, approximately 4 million of whom are believed to have been heavily exposed to asbestos.[17]

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[16] National Institutes of Health, ESTIMATES OF THE FRACTION OF CANCER IN THE UNITED STATES RELATED TO OCCUPATIONAL DISEASES (continued on next page)

Estimates as to the total number of individuals who will contract an asbestos-related disease are frightening. In 1978, Joseph Califano, the then secretary of the former Department of Health, Education, and Welfare, warned that as many as 5.6 million Americans may die of cancer or the other diseases associated with asbestos as a result of exposures in shipyards and other work places since World War II.[18] This would comprise roughly one-half of those occupationally-exposed to asbestos during this period. Dr. Phillip L. Polakoff, an occupational health specialist, has estimated that as many as 2.15 million of these individuals will die from one of the asbestos-associated cancers.[19] As most of these cancers will manifest during the next 30-35 years, the per annum average of cancers that may be attributable to asbestos will be 67,000,

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(1978), at 8.

A survey conducted between 1972-74 found that there were 1.6 million industrial workers who were at that time potentially exposed to asbestos. National Institute for Occupational Safety and Health, NATIONAL OCCUPATIONAL HAZARD SURVEY: SURVEY ANALYSIS AND SUPPLEMENTAL TABLES (1977).

[17] Id.

[18] This statistic is based upon estimates that the risks of regular exposure to asbestos include a 20-25% increase in deaths from lung cancer, a 7-10% chance of dying from mesothelioma, an 8-9% increase in deaths due to gastrointestinal cancers, and a 7% risk of dying of complications resulting from asbestosis.

[19] ASBESTOS-RELATED OCCUPATIONAL DISEASES, Hearings Before the (continued on next page)

or about 17% of all cancers detected annually in the United States.

2. OTHER VICTIMS

Individuals who have been occupationally-exposed to asbestos constitute those victims who are most easily identifiable. At least at the present time, they are also the largest group of asbestos victims. Less identifiable but potentially of greater significance in terms of numbers and liability are the millions of individuals who have been and continue to be exposed to asbestos outside of the workplace.

Studies conducted to date have indicated an increased risk of asbestosis and mesothelioma among household members of asbestos workers.[20] Asbestos fibers that are ambient within the confines of public and private buildings subject millions of individuals to their inhalation on a daily basis. Foremost among this number are the millions of people who have been exposed to the asbestos that has been used in construction of a large percentage of our nation's schools.[21] Individuals residing in the vicinity of shipyards and other facilities that have

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Subcommittee on Compensation, Health and Safety of the Committee on Education and Labor, House of Representatives, 95th Congress, Second Session (October 23 and 24, 1978; November 13 and 14, 1978), at 148.

20. See, e.g., Newhouse and Thompson, Mesothelioma of Pleura and Peritoneum Following Exposure to Asbestos in the London Area, 22 BRITISH JOURNAL OF INDUSTRIAL MEDICINE 261 (1972); Anderson, Lilis, Daum and Selikoff, Asbestosis Among Household Contacts of Asbestos Factory Workers, 330 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES 387 (1979).

21. See OVERSIGHT HEARINGS ON ASBESTOS HEALTH HAZARDS TO SCHOOL- (continued on next page)

or continue to use asbestos are often exposed to airborne fibers.

The impact of such exposures is not known. However, the frightening possibility exists that a large proportion of the American population could some day be plagued by diseases brought on by their everyday, incidental exposure to asbestos.[22]

B. MEDICAL AND PERSONAL COSTS ASSOCIATED WITH ASBESTOS-RELATED DISEASES

Asbestos diseases place enormous economic and social burdens on the victims, their families and society. The costs required for medical care and treatment are extensive. The various diseases are debilitating and irreversible. Asbestosis can linger for years. Mesothelioma and bronchogenic carcinoma

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CHILDREN, Subcommittee on Elementary, Secondary and Vocational Education, Committee on Education and Labor, United States House of Representatives, 96th Congress, First Session (January 8 and 16, 1979; February 22, 1979).

Dr. Irving J. Selikoff of the Mt. Sinai School of Medicine in New York estimates that between 2 and 6 million students may be attending schools with asbestos surfaces in pupil areas, with an additional 100 to 300,000 teachers also exposed to asbestos. Selikoff, Asbestos-Associated Disease, PUBLIC HEALTH AND PREVENTIVE MEDICINE 11th ed. (1980), at 597.

[22] At least one lawsuit has been filed on behalf of schoolchildren. That case seeks to order the Philadelphia School District to establish a trust fund to pay potential claims brought by students who may develop an asbestos-related lung disease during the next 45 years as a result of exposure to asbestos in the city's schools. See Steigelman v. School District of Philadephia, United States District Court for the Eastern District of Pennsylvania, No. 80-4729.

are invariably fatal, with death generally occurring within several years of diagnosis. The very nature of cancer requires specialized treatment. The total direct cost for this is high and constantly increasing: in 1978, Dr. Phillip L. Polakoff indicated in testimony before a Congressional Subcommittee that it is estimated that costs for treatment of lung cancer are $19,000.[23] When one takes into consideration the total number of potential victims of asbestos-related cancers and factors in inflation, it is clear that the ultimate cost of medical treatment will be extraordinarily large.

Indirect costs to the victim and his family are greater still. These include loss of income due to premature disability and death, and the depletion of financial resources. Though our judicial system makes an effort in this direction, the emotional burdens occasioned by loss of physical ability and dignity, and the pain of observing a loved one suffer and die, are truly incalculable.

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[23] ASBESTOS-RELATED OCCUPATIONAL DISEASES, Hearings Before the Subcommittee on Compensation, Health and Safety of the Committee on Education and Labor, House of Representatives, 95th Congress, Second Session (October 23 and 24, 1978; November 13 and 14, 1978), at 161.

At the same hearings, Allen B. Coats, general respresentative for the Metal Trades Department, AFL-CIO, stated that the average medical cost of a cancer death is $42,000. Id. at 275.

Because the average person lives only a short period of time after the diagnosis of lung cancer, the money expended for medical treatment is compressed into a period of months.

(continued on next page)

C. THE COSTS TO SOCIETY OF ASBESTOS-RELATED DISEASES

Disability generated by the diseases causes most workers to leave the work-force or accept jobs that are less-physically demanding. Unemployment of an experienced worker translates into loss of productivity and necessitates expenditure of public funds for unemployment compensation, welfare payments, disability insurance, food stamps and medical care. The costs for such programs are, of course, borne by the general community.

Nationwide, health care costs for all maladies average better than $205 billion per year. Of this amount, the Federal Government pays $59 billion. U.S. Department of Health, Education and Welfare, SMOKING AND HEALTH. REPORT OF THE ADVISORY COMMITTEE TO THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE (1979), at 2.

IV. RAMIFICATIONS OF THE PROBLEM: COMPENSATION OF ASBESTOS VICTIMS

Recognition of the very serious medical consequences of asbestos use has been accompanied by a question of increasing importance: how to compensate the victims of asbestos-related diseases for their physical, financial and emotional losses? Though a variety of programs and systems exist to provide benefits for medical expenses and to protect against income loss, none do so in a truly adequate and equitable manner.

A. WORKERS' COMPENSATION AND OTHER "NON-FAULT" PROGRAMS

Because the majority of asbestos-related diseases that have occurred to date are occupationally-related, a substantial number of individuals have resorted to the various state and federal workers' compensation systems to compensate for certain of their losses. As all states include asbestos-related diseases as compensable injuries, claimants are theoretically eligible to receive wage-replacement and medical benefits if they can establish that their diseases were contracted in the workplace.

In practice, a number of statutory and practical barriers exist to render workers' compensation an inadequate remedy for those sustaining asbestos-related losses. The difficulties in establishing the work-relatedness of such diseases and the imposition of statutory restrictions on recovery combine to limit the number of individuals who receive benefits and the actual benefits received.[24] Prolonged periods of time elapse before compensation is made.[25] Protection against income loss is inadequate - - the average worker who is totally disabled by an occupational disease receives only $9,700 or roughly 1/8 of lost income.[26] Because compensation differs between jurisdictions, wide variations exist in the amount of compensation available. The scope of compensation programs are, obviously, limited - - as only the disabled worker can seek recovery, family members contracting asbestos diseases are forced to seek compensation elsewhere.

Availability of a variety of public and private health insurance and income protection programs has afforded asbestos victims the opportunity to obtain compensation in a simple, non-adversarial manner. These programs include private health and disability insurance, veterans' benefits, Medicare and Medicaid, Social Security, and public assistance payments. Despite the variety, the benefits that these programs currently provide are woefully incapable of offsetting the physical, economic and emotional losses sustained.[27] Moreover, the expense for such programs is largely borne by the general community.

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[24] See U.S. Department of Labor, AN INTERIM REPORT TO CONGRESS ON OCCUPATIONAL DISEASES (1980), at 65-78.

[25] On average, a disabled worker with an occupational disease waits one year before receiving his first payment of compensation benefits, whereas work-injury cases are settled on average in two months. Id. at 75.

[26] Id. at 74.
By contrast, workers totally disabled for life due to accidents receive $23,400. The total cash paid to the survivors of an occupational disease victim is only $3,500. This compares with the average $57,500 paid to survivors of occupational accidents. Id.

B. LITIGATION AS A COMPENSATION REMEDY

Inability of other compensatory systems to provide adequate benefits to asbestos victims has resulted in the filing of a tremendous number of product liability claims. With as many as 12,000 cases having been brought in our state and federal courts during the past decade, it is apparent that our judicial system has been inundated by asbestos claims.[28] The situation continues to deteriorate. In view of the long latency periods for asbestos diseases and the fact that tremendous quantities of asbestos have been used since the 1940's, the next twenty-five to thirty years will likely witness a sharp increase both in the incidence of asbestos diseases and in the filing of claims for relief.[29] Though efforts to quantify this number are speculative, the fact that as many as 11 million individuals may have been occupationally exposed to asbestos since 1940 leads to the reasonable conclusion that an extremely large number of claims will be filed during this period of time.

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[27] Benefits paid by the Social Security Disability Insurance Program averaged just $3,900 in 1978. *Id*. at 82.

Though the Social Security Disability Insurance Program has come to be the most frequently utilized income maintenance program for the long-term totally disabled, as many as 80% of those who are severely disabled from an occupational disease fail to meet basic eligibility requirements. *Id*. at 80, 80-81.

[28] The situation presently facing the United States District Court for the Eastern District of Pennsylvania is indicative of that in many courts throughout the country. By the latter portion of July, 1980, more than 250 asbestos cases had been filed there, causing one law clerk to remark that an "administrative nightmare" had been created. ASBESTOS LITIGATION REPORTER, July 25, 1980, at 2104.

C. THE NATURE OF ASBESTOS PRODUCT LIABILITY LITIGATION

The typical product liability case is brought by an insulation or shipyard worker - - or, in all too many instances, by representatives of his estate.[30]

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[29] Not only will previous exposures to asbestos result in the continued manifestation of asbestos-related diseases, but so too will future exposures. During the past ninety years, more than 30 million tons of asbestos have been used in the United States, approximately two-thirds in the construction industry. Much of this material remains in place aboard ships, in buildings and in industries. The maintenance, repair and removal of this material presents enormous control problems for the future, particularly because proper procedures and precautions have yet to be fully developed for these activities. See Selikoff, Asbestos-Associated Disease, PUBLIC HEALTH AND PREVENTIVE MEDICINE 11th ed. (1980), at 585. The situation presents important problems for the future. Though asbestos materials are now infrequently used in new ship construction, studies of repair workers have indicated that 86% had radiological evidence of asbestosis. With an estimated 241,000 individuals employed by the shipbuilding and ship repair industry in 1978, it is apparent that the legacy of disease from past exposures will be compounded by problems arising out of future exposures. Selikoff, Nicholson and Lilis, Radiological Evidence of Asbestos Disease Among Ship Repair Workers, 1 AMERICAN INDUSTRIAL MEDICINE 9 (1980).

In the typical case, plaintiffs argue that their asbestos-related diseases were caused by the negligence, strict liability or breach of warranty of the various defendants. Essentially, plaintiffs will allege that the manufacturers and distributors of the asbestos products to which they were exposed failed to adequately test such products, failed to warn or adequately warn ultimate users of inherent health hazards, and failed to use acceptable, but non-dangerous, substitutes. Defendants generally assert that there was no exposure to their products, or that at the time of manufacture, sale or distribution the state of the art was such that their actions were proper and that warnings were either unnecessary or appropriate as used.[31]

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30. Longitudinal epidemiological studies of cohorts of asbestos insulation workers and shipyard workers have revealed that:

    -- 20-25% of those with substantial exposure to asbestos die of lung cancer,
    -- 10-18% die of asbestosis or complications related thereto,
    -- 10% die of gastrointestinal cancer.

    U.S. Department of Labor, AN INTERIM REPORT TO CONGRESS ON OCCUPATIONAL DISEASE (1980), at 16. Studies conducted on insulation workers indicate that an additional 7-10% die of mesothelioma. See Selikoff, Hammond and Seidman, Mortality Experience of Insulation Workers in the United States and Canada, 1943-1976, 330 ANNALS OF THE NEW YORK ACADEMY OF SCIENCES 91 (1979).

31. Up until 1964, warnings were not placed on asbestos products. Beginning that year some manufacturers began placing warning labels on asbestos insulation. By 1967, some sort of warning was universally used. These warnings were (continued on next page)

Because plaintiffs often used asbestos materials that were produced and supplied by a number of parties, these cases may include as many as twenty or more defendants. Many cases involve multiple plaintiffs as well. The cases present complex issues that require expert medical testimony and sophisticated legal argument. The number of parties involved and the complexity of issues generally make for costly and protracted litigation.

The defendants engaged in these cases consist largely of the various manufacturers, producers and distributors of asbestos and asbestos products. The list of defendants presently involved in asbestos litigation is exhaustive, exceeding a total of 260 who in some manner are now or were directly or indirectly engaged in business activities concerning asbestos. In one form or another, at least 60 insurance companies are involved in these matters, as well. (See Appendix B)

The liability of the asbestos defendants is based

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generally "mild," and the court in Borel v. Fibreboard Paper Products Corporation, 493 F.2d 1076 (5th Cir. 1973), the leading asbestos products liability case, held that the jury could reasonably have concluded that the warnings did not adequately communicate to the parties exposed to asbestos knowledge of the dangers inherent in its use.

The 1964-65 period marks a watershed as to the "state of the art". Prior to that time, a strong argument could have been made that the art, at least insofar as insulation workers were concerned, was not such as to put an asbestos insulation manufacturer on notice of the hazards inherent in use of asbestos insulation. With the publication of

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primarily on the marketing of an inherently-dangerous product. The industry's position in these cases is exacerbated by the allegation that it was aware of the dangerous propensities of asbestos as early as the 1920's. The industry itself insists that it did not become aware of the problem until the mid-1960's. However, certain tangible evidence demonstrates a different situation.[32] This evidence has been used to counter state of the art arguments and to support claims for punitive damages. Though the industry has continued to deny any wrongdoing, recent court decisions have seen jury awards for punitive damages.[33]

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the results of studies among insulation workers, see note 5 _supra_, these dangers should have been known. However, with the disclosure of documents indicating early awareness on the part of the asbestos industry of the hazards inherent in asbestos use, see text and note at 32 _infra_, the state of the art defense may have lost much of its legal validity.

Offensive use of the doctrine of collateral estoppel, see text at notes 52 and 53 _infra_, may also sound the death knell for the state of the art defense. Relying upon the decision it enunciated in _Borel_, the United States District Court for the Eastern District of Texas is prohibiting introduction of evidence relating to the defense in cases involving injuries caused by exposure to asbestos-containing insulation products. See, _e.g._, Amended Omnibus Order, _Hardy v. Johns-Manville Sales Corporation_, Civil Actions M-79-145-CA and Consolidated Cases, dated March 13, 1981.

[32] Various documents obtained through discovery procedures in underlying claims indicate early awareness by the asbestos industry of the dangers inherent in asbestos use, and a pattern and practice of denying the existence of any problem, ignoring the existing scientific and medical data, suppressing publication of adverse studies, refusing to heed admonitions or to warn others of the dangers inherent in asbestos use, and soliciting unfounded but favorable conclusions in support of its position.

[33] Punitive damages have been awarded in few cases, the first of which was _Hammond v. North American Asbestos Co._, No. 80-L-52, Circuit Court of McLean County. Illinois (1981). There, the jury awarded plaintiff $375,000 in punitive damages in addition to compensatory damages in the amount of $125,000. More (continued on next page)

Medical evidence to the effect that cigarette tobacco smoke is a prime cause of bronchogenic carcinoma has led two asbestos defendants to commence third-party actions against members of the tobacco industry.[34] Others have sought to demonstrate that the diseases plaintiffs have sustained are not causally-related to asbestos inhalation, but rather are the result of smoking habits. Defendants in these cases allege that cigarette producers are responsible for all or part of the injuries sustained by plaintiffs. As epidemioligical studies have clearly shown that lung cancer among certain groups of asbestos workers is largely confined to those with a history of cigarette smoking,[35] it is clear that the tobacco industry bears a major portion of the responsibility -- and the resultant damages -- for the injuries that many individuals are claiming were caused by asbestos. The liability of the tobacco rather than asbestos industry for certain lung disorders has recently been made clear by the outcome of a case tried in the United States

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recently punitive damages were awarded in the amount of $500,000 in a case tried in a federal court in Ohio. See Moran v. Johns-Manville Sales. Corp., No. C 79-345, United States District Court for the Northern District of Ohio (1980).

In addition to punitive damage awards, at least one court has permitted a cause of action for the alleged fraudulent concealment of known dangers. See Johns-Manville Products Corp. v. Superior Court of the State of California, County of Contra Costa, sub. nom. Reba Rudkin v. Johns-Manville Products Corp., 27 Cal.3d 465 (1980).

[34] See, e.g., cross-complaints filed in Bell v. Johns-Manville Corporation, No. C 80 3936 RFP, United States District Court for the Northern District of California, and Robbins v. Johns-Manville Corporation, No. C 319 073, Superior Court of the State of California for the County of Los Angeles.

[35] See note 10 supra.

District Court for the Eastern District of Pennsylvania.[36] There, the jury agreed with the contention of the defendants that plaintiff's condition was emphysema, caused by thirty-five years of smoking cigarettes, rather than asbestosis.[37]

In view of the extensive and heavy use of asbestos products for shipbuilding during World War II and its aftermath, it is apparent the United States Government will play a role in asbestos litigation. Evidence exists to the effect that the government possessed early awareness of the hazards inherent in asbestos use.[38] Despite this, the government not only failed to take those steps necessary to minimize the risks involved in asbestos exposure, but actually fostered the mineral's use. In the effort to win the war, the government condoned careless work practices in naval shipyards, required inclusion of asbestos in products sold to it, and actually provided the asbestos to be used for various projects. These activities by the government demonstrate its legal, moral and financial responsibility for many of today's problems.[39]

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[36] Barlieb v. Turner & Newall, Ltd., C.A. No. 78-1027, United States District Court for the Eastern District of Pennsylvania (1980).

[37] See PHILADELPHIA BULLETIN, January 28, 1981, and ASBESTOS LITIGATION REPORTER, February 13, 1981, at 2927-2929.

[38] See Dreessen, Dallavalle, Edwards, Miller and Sayers, A Study of Asbestosis in the Asbestos Textile Industry, PUBLIC HEALTH BULLETIN NO. 241 ix (1938).

Recognition of the health hazards inherent in asbestos use helped prompt the Navy Department and the Maritime Commission to issue minimum requirements for safety and industrial health in contract shipyards. The requirements, issued in 1943, contain guidelines requiring use of certain protective equipment so as to minimize exposure to asbestos fibers. U.S. Navy Department - U.S. Maritime Commission, MINIMUM REQUIREMENTS FOR SAFETY AND INDUSTRIAL HEALTH IN CONTRACT SHIPYARDS (1943).

Though few cases have alleged claims against the shipbuilding and asbestos unions for the injuries sustained by their members,[40] it is possible that they will play a future role in asbestos litigation. Evidence is claimed to exist suggesting that the leadership of a number of unions involved in the shipbuilding and construction trades was aware of the hazards inherent in asbestos use, but failed to properly inform its membership of such dangers.

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[39] It is instructive to note that during September, 1978, the Justice Department agreed to pay $5.7 million as the government's share of a $20 million settlement of an asbestos case then pending in the United States District Court for the Eastern District of Texas. The beneficiaries of the settlement were some 445 workers at an asbestos plant located in Tyler, Texas. The facility, co-owned from 1962-72 by PPG Industries and Corning Glass Works, manufactured asbestos pipe insulation, some of which was sold to the government for use in Navy vessels. The workers alleged that the government was liable in providing the factory with asbestos in unmarked and unsafe bags and in violating the provisions of the Walsh-Healey Act by failing to ensure a safe work place for federal contractors.

To date, only these four parties have been named as defendants or third-party defendants in asbestos litigation. However, as further studies are conducted and as medical techniques become more sophisticated, it will come to be understood that a great variety of substances will act in concert with asbestos to cause the diseases now linked solely to asbestos. The list of potential defendants is endless, and as they are added as parties to the asbestos cases, the legal and factual issues presented will increase in both number and complexity.

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[40] One case that has done so is Ahearn v. Johns-Manville Corporation, C.A. No. 80-342-MA M.B.L. No. 1, United States District Court for the District of Massachusetts. Two union locals and thirteen of their officers are named as third-party defendants in that matter. The unions and their officials are alleged to have been aware that asbestos was being used for the projects in which their members were engaged, to have been aware of the hazardous effects of asbestos use, and to have breached their responsibility to the union membership to provide safe working conditions.

D. INADEQUACIES OF LITIGATION AS A COMPENSATION REMEDY

As a compensation remedy, litigation has proven inadequate. The large number of parties involved in these matters and the complexity of the medical and legal issues make for a protracted and time-consuming process. The cases are marked by costly pretrial discovery that consumes years of time. Plaintiffs are not compensated during this period. The excessive wait between the filing and final disposition of a case means that many claimants are deceased before ever receiving compensation. This is particularly true with individuals suffering from mesothelioma, as few of these victims survive more than two years after onset of the disease. The delays that are characteristic of our litigation system force many plaintiffs to settle matters at amounts far below what their injuries warrant.

As a means of reallocating resources among the various parties involved, litigation is costly and financially inefficient. Plaintiffs forfeit a substantial portion of the amount recovered - - traditionally as much as 33-40% - - for legal fees and related costs. Incurred medical expenses, workers' compensation liens and other expenses are paid out of the same source. On the defense side, for every dollar paid by insurers for a bodily injury claim, an average of 35 cents is paid for defense costs, including attorneys' fees.[41] These costs are much higher where a case is disposed of by means of court verdict - - on average 95 cents will then be expended for defense costs for every dollar paid for the bodily injury claim.[42] In addition to these legal costs, the insurer also incurs normal administrative expenses.

The costliness of the litigation system can be best understood by the following example. Assume that the plaintiff receives a jury verdict for $100,000. Of this amount, he will likely pay $40,000 for legal fees and related costs, an additional $9,000 as reimbursement for his workers' compensation payments and some $10,000 to repay incurred medical expenses. The defendant's insurer will spend as much as $95,000 to contest the claim. Thus, the insurance company defending the case will expend $195,000 to deliver a sum to the plaintiff of only $45,000 - - an amount that is received some two, three or more years after the case is commenced. These amounts, of course, do not include the administrative costs required to run the court system itself.

The outcome of litigation is, moreover, inconsistent and uncertain. The adversarial nature of the judicial system prevents any guarantee that even the most deserving plaintiff will recover. To a great extent, recovery is dependent on the skill and competency of legal counsel, artificial barriers such as statutes of limitations, and the whims, passions, and prejudices of juries.[43] Local rules of court and differing standards for liability result in judgments and decisions that vary from jurisdiction to jurisdiction.

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[41] Insurance Services Office, 1977 SURVEY OF PRODUCT LIABILITY CLOSED CLAIMS IN THE UNITED STATES, at 93.

See also U.S. Department of Labor, AN INTERIM REPORT TO CONGRESS OF OCCUPATIONAL DISEASES (1980), at 96-97.

[42] Id.

The constant filing of asbestos cases has so affected the judicial system that compensation is slow, when it is at all available. This has affected resolution of all matters pending judicial determination, not just the asbestos cases. As claimants continue to look to tort litigation as a means of compensation, the system is in danger of coming to a virtual standstill. Continued and proper resolution of these matters by the courts will necessitate the employment of thousands of additional personnel - - judges, court officers, stenographers, clerks, etc. - - and will require the expenditure of millions of dollars for capital improvements, equipment and the like. Monies required for this will, of course, be obtained from the general public through taxes.

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[43] The ability of outside factors to influence the outcome of asbestos litigation is demonstrated by the disparties existing in injury awards in cases tried to date. Published results of cases indicate awards ranging from $16,000 to $3 million.

Estimates are that only about one-half of the asbestos cases that have gone to full trial have resulted in plaintiff verdicts.

The ability of a jury to be swayed by sympathy for a plaintiff and/or prejudice against a defendant is indicated by the outcome of Hogard v. Johns-Manville Corporation, No. 137466, Superior Court of the State of California for the County of Los Angeles. There, the jury awarded plaintiff $1.2 million in compensatory damages. The court later ordered the award reduced to $250,000, commenting that the jury verdict was based on either passion, prejudice or speculation, and that it was four times the amount that in good conscience could be permitted in light of the fault of the defendants and the comparative fault of the plaintiff. The plaintiff refused to accept the reduced award and appealed the court's order. At last report, his appeal is still pending, and he is yet to be compensated for his injuries.

The situation is likely to get worse in the future. Because the incidence of asbestos diseases will increase in coming years, thousands of additional lawsuits can be anticipated. With increased efforts being undertaken to determine the existence of parties who are responsible for the injuries either by themselves or in concert with others, these cases will witness an endless addition of defendants and third-party defendants. The legal and factual issues involved will increase both in number and complexity, resulting in a further bogging down of the judicial system and an increased inability of asbestos victims to obtain speedy resolution of their legitimate claims.

By any objective standard, it is obvious that the litigation system is a costly, ineffective and inefficient means of compensating victims of asbestos-related diseases. The very nature of the system and its typical operation indicate that the only participants who truly benefit are the attorneys representing the various plaintiffs and defendants.

V. RAMIFICATIONS OF THE PROBLEM: THE EFFECTS ON THE INSURANCE INDUSTRY AND THE IMPLICATIONS FOR SOCIETY

A. THE INSURANCE INDUSTRY'S FINANCIAL DISTRESS

The proliferation of asbestos litigation and the money that must be expended for legal costs and damages threatens the financial stability of many of the insurance companies that are presently defending and indemnifying the various asbestos defendants. The problems that these insurers will face will affect not just their insureds, but ultimately society as a whole.

It is impossible to assess with exactitude the total liability that the insurance industry will be forced to bear. However, data compiled as to past actions and estimates as to future claims allow rough parameters to be set.

A study conducted by the Insurance Services Office indicates that for the period between July, 1976 and March 15, 1977, the average payment in an asbestos case (for settlements and jury awards) was approximately $170,000.[44] If just one million asbestos claims are resolved at that average value, the insurance industry's liability will be $170 billion.

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[44] Insurance Services Office, 1977 SURVEY OF PRODUCT LIABILITY CLOSED CLAIMS IN THE UNITED STATES, at 38.

Though the above figures serve to indicate eventualities, they do so without accounting for all possible contingencies. Because future projections are based largely on past performance, they do not reflect the impact of inflation. As medical costs and wages rise in future years, losses sustained will be higher and will result in increased liability payments.[45] Similarly, the possibility of high jury awards becoming commonplace will cause chaos among insurers. Though we are aware of only two claimants having obtained jury verdicts in excess of $1 million,[46] the trend toward higher and higher awards will alter this course.

Perhaps most important is the fact that we are only now beginning to perceive the enormity of the situation. In view of the previously-mentioned estimates as to occupational exposure to asbestos and the mortality rates to date, it is not

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45. The future effects of inflation are difficult to measure. However, it is possible to assume that inflation played some role in the fact that the average cost for each asbestos case disposed of by Johns-Manville Corporation during 1980 was $23,000, as opposed to $13,000 in 1979. Both figures are exclusive of attorney fees. ASBESTOS LITIGATION REPORTER, February 13, 1981, at 2297.

    All told, Johns-Manville disposed of 402 claims during 1980 at a total cost, again exclusive of legal fees, of approximately $9,246,000. Id.

46. Hogard v. Johns-Manville Corporation, note 43 supra (jury award of $1.2 million); Migues v. Nicolet Industries, No. CN B-78768 CA, United States District Court for the Eastern District of Texas (1980) (jury award of $3 million).

inconceivable that several million claims will ultimately be filed. Taking into consideration the latency periods for the asbestos diseases, the heavy and continued use of asbestos since the 1940's, and the potential for future medical evidence linking asbestos with other diseases, we can anticipate an increased incidence of asbestos-associated diseases during the next two or three decades. With workers' compensation and public assistance programs remaining as inadequate compensatory sources, a staggering number of asbestos product liability claims may be filed. Potential total liability will be immense when one includes factors such as inflation and "run-away" jury verdicts. It is conceivable that the damages that will be ultimately awarded will exceed the combined assets of the insurance and asbestos industries.

In addition to liability payments, the insurance industry will be forced to bear tremendous expenses to process, administer, and defend each case filed. As cited above, statistics compiled by the Insurance Services Office demonstrate that for every dollar paid out in damages for bodily injury claims, defense costs may range as high as 95 cents.[47] This figure is corroborated by recent examples for asbestos cases. Johns-Manville Corporation, the nation's largest producer of asbestos and one of the defendants heavily engaged in asbestos litigation, has publicly indicated that its defense costs and incurred liability have been roughly equal.[48] Considering the length and complexity of asbestos litigation, it is extremely likely that expenditures to defend asbestos cases will greatly exceed actual liability.

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[47] See note 42 supra.

The situation that has developed and that continues unabated presents the insurance industry with grave economic problems. Because the massive expenditures that asbestos litigation requires exceed the industry's present liquid capitalization, many insurers will be confronted with serious financial problems. These problems, though on the surface pertinent only to the insurance companies actively engaged in asbestos litigation, have profound implications for society as a whole. The insurance industry operates by delicately balancing earnings from premiums with anticipated losses and expenditures. Where this balance is thrown off, as, for example, by the costs that asbestos litigation is requiring, fiscal uncertainty pervades the system.[49] At the point when this uncertainty threatens the financial stability and even

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48. As of July 1980, Johns-Manville had disposed of some 600 cases at a total cost of $9 million, plus about the same amount in legal fees and expenses. THE WALL STREET JOURNAL, June 30, 198[illegible] at 1.

49. As a case in point, William N. Edwards, an assistant vice-president for American Reinsurance Company, has estimated that the loss and loss adjustment expense for asbestos claims filed this year will approximate $1.35 billion, as against the total insurance industry's premium for all general liability coverage (less medical malpractice insurance) in 1980 of just $6.3 billion. See THE STANDARD, March 20, 1981, at 19.

viability of insurers, harsh measures will have to be adopted to ensure survival. From this perspective, insurers will be forced to liquidate assets to meet defense and indemnification obligations.[50] Investments will be curtailed, thus affecting those individuals and businesses who rely upon the industry for capital. The shifting of resources to meet the requirements of asbestos litigation and the eventual expenditure of these funds will strip all insureds of the protection for which they have paid and contracted. Businesses not even remotely engaged in asbestos litigation will thus be faced with the frightening possibility of placing their economic futures on the line against the potential of an enormous plaintiff's verdict. Private individuals will hold homeowner's, health, and automobile insurance contracts that are worthless because there will no longer be sufficient assets to provide the protection purchased.

The financial precariousness of insurers will force the

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50. The inability of insurers to meet the financial requirements for defense and indemnification will require the actual defendants to bear such burdens, as will the fact that the amount of money insurers are contractually obligated to provide may eventually be greatly outweighed by resulting total liability. Whether the asbestos defendants will be capable of handling litigation without facing financial ruin is problematic. Already, auditors for Johns-Manville Corporation have indicated they will qualify that company's financial statements for 1979 and 1980 due to growing concern over the impact on the company of asbestos-related lawsuits. See THE WALL STREET JOURNAL, March 3, 1981.

Needless to say, when asbestos defendants are incapable of providing the funds necessary to pay for the liabilities that they have incurred, plaintiffs will go without compensation for their injuries.

adoption of drastic measures in an effort to regain stability. Limited resources will result in a smaller and more conservative investment portfolio. The risks presented by product liability will cause insurers to withdraw from certain markets. Businesses will be forced to become self-insurers, and the fear and potential of liability will cause many to forego the research and development of useful but risky products. Sharp increases in premiums will be felt by both private individuals and business organizations. Companies forced to pay the higher insurance rates will pass their costs on to the consumer. The consumer himself will be forced to accept the increased rates for personal insurance such as health, homeowner's, life, automobile, and disability, or chance economic ruin by foregoing such protection altogether. The higher premiums will, ultimately, contribute to the inflationary pattern that now appears inescapable.

B. THE EXPANSION OF TORT LIABILITY AND INSURANCE CONTRACT LAW AS FACTORS IN THE SOCIAL PROBLEM

The sheer number of cases and the costs that are required to administer them are not the only reasons that the insurance industry, its insureds and ultimately society as a whole are confronted with serious problems. In an effort to compensate injured litigants, courts have manipulated concepts of tort and insurance law, vastly expanding theories of liability and contractual relationships. Rather than developing new methods to meet the legitimate claims of those affected by technical change, we persist in applying traditional systems to new issues and needs. Though grounded in concepts of social justice, this effort causes an expansion of law that imposes retrospective liability on defendants, ignores economic reality, and thrusts unreasonable, illogical and costly burdens on society.

Four recent examples demonstrate this alarming trend. The first concerns the blurring of the workers' compensation/ tort liability dichotomy. Though workers' compensation has long been viewed as an exclusive remedy as against the injured worker's employer, recent judicial decisions indicate that the employer's immunity from suit is not absolute. This has been explicitly demonstrated in the asbestos litigation area by a recent decision of the California Supreme Court.[51] There, the court held that although California's workers' compensation law barred an employee form suing his employer at law for his initial, occupational injury, the remedy's exclusiveness does not prevent a cause of action for aggravation of such injury due to the employer's fraudulent concealment of the condition and its cause.

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[51] Johns-Manville Products Corp. v. Superior Court of the State of California, County of Contra Costa, note 33 supra.

The second example concerns the legal concept of collateral estoppel. Traditionally available for defendants to prevent relitigation of issues that have already received full and fair judicial review, recent cases have witnessed an effort to apply the doctrine offensively, thereby easing the evidentiary burden that a plaintiff must bear in proving that his injuries were caused by exposure to asbestos. At least one court has applied the doctrine in this fashion.[52] In declaring that products containing asbestos were defective and unreasonably dangerous as a matter of law, this court has prevented defendants from raising state of art defenses.[53]

The most far-reaching recent expansion of product liability law has come with the enunciation of the "market-share" concept of liability. Ignoring the traditional rule that a plaintiff must demonstrate the particular party responsible for the product causing his injury, this concept provides that responsibility for damages is to be apportioned according to market share among all manufacturers or producers of a product that allegedly caused an injury.[54] Pursuant to this theory, a plaintiff is permitted to recover even though he is unable to identify his tortfeasor. The burden of proof shifts to the defendants, giving each the often impossible task of proving that it could not possibly have caused the plaintiff's injuries, thereby imposing liability on innocent parties and minimizing the damages that the true tortfeasor would otherwise bear.

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[52] Order dated April 25, 1980, in Flatt v. Johns-Manville Sales Corp., 488 F.Supp. 836 (E.D. Tex. 1980).

[53] The court cited Borel, note 31 supra, as precedent for its use of the doctrine.

More recently, a second court refused to apply the doctrine, noting that doing so would deny rights of due process and the right to a jury trial to defendants who were not involved in the Borel case, and that legal issues other than those argued in Borel were also involved in the instant matter. The court also noted that the occurrence of conflicting jury decisions since Borel have made application of the collateral estoppel doctrine suspect in asbestos litigation. Memorandum Opinion dated November 20, 1980, in the following civil actions pending in the United States District Court for the Southern District of Mississippi: McCarty v. Johns-Manville Sales Corp., Civil Action S79-0316 (N) and all cases consolidated therewith; Wedgeworth v. Armstrong Cork Co., Civil Action J78-0002(N) and all cases consolidated therewith; Chapin v. Acands, Inc., Civil Action S79-0272(N) and all cases consolidated therewith.

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54. The leading case on market share liability is Sindell v. Abbott Laboratories, 26 Cal.3d 588, 607 P.2d 924 (1980), cert. denied, ________ U.S. __________ (1980). The case concerned a woman who had sustained injuries due to ingestion by her mother of the generic drug diethylstilbestrol (DES). Although plaintiff was unable to identify the manufacturer of the injury-causing product, the court held that where a plaintiff joins in a legal action those producers constituting a substantial share of the appropriate market, the cause of action may be maintained. In such instances, the burden of proof shifts to the defendants to demonstrate that they could not have made the substance which injured plaintiff. Damages are apportioned among those defendants pursuant to their proportionate share of the market.

To date, market share liability has been applied only in DES cases. Recently, however, the United States District Court for the Eastern District of Texas granted a motion permitting defendants in an asbestos case to file cross-complaints against their co-defendants alleging contribution of damages according to a concept of market-share apportionment, and granted a further motion permitting discovery to commence thereon. See Memorandum Opinion and Order, Hardy v. Johns-Manville Sales Corporation, Civil Action No. M-79-145-CA (CONSOLIDATED), dated March 13, 1981.

Changes in the law such as the above are indicative of a trend that seeks to blatantly extend the "deep pockets" concept so as to ensure recovery by plaintiffs. The effort to socialize liability creates chaos in the areas of tort and insurance law, and uncertainty in the minds of manufacturers and their insurers. In its application of new concepts of law, it creates obligations for insurers that were not contemplated when the insuring agreements were executed. Fostered by judicial action, it wreaks havoc in the law and affects all of society through increased insurance premiums, withdrawal of insurers from markets, and a further burdening of the litigation system.

Of ultimately greater significance to the future of the tort system and the insurance industry is the debate which rages today on the issue of insurance coverage. The dispute, which has taken the form of at least twenty declaratory judgment actions nationwide, pits members of the asbestos and insurance industries against one another in an effort to resolve the issue of who is obligated to defend and indemnify the insured. (See Appendix C)

Two major theories of insurance coverage have emerged in this dispute. The first, the "manifestation theory," provides that in underlying lawsuits alleging injury due to asbestos exposure, insurance coverage attaches at the time the plaintiff's asbestos-related condition manifests itself.

The controlling date for determining which policy is in effect is the time that the disease becomes known or should have become known to the plaintiff, or the date on which he is diagnosed as having such disease, whichever occurs first. Only the carrier on the risk at that time is obligated to defend and indemnify the insured.

Contrasting with the manifestation theory are the variations of the so-called "exposure theory." One version provides that defense and indemnification are the responsibility of all insurers on the risk during the entire time a particular claimant was exposed to the insured's asbestos products. A second version pro-rates these burdens among the insurers and insured in proportion to the time their respective insured/uninsured periods were in effect.

Proponents of the exposure thoery have adopted a concept of law that is of recent origin, an origin that was never thought of and was, in fact, inconceivable when many of the policies to which it is claimed to apply were first entered into. Its application abandons basic concepts of contract law and basic realities of underwriting practices. It is inconceivable that the parties to an insurance contract that was executed 40 to 50 years ago could have believed that the protection provided for a three or five-year period would still be in force today. It is inconceivable that one could convincingly state that the insured and underwriter both believed that the premium paid 40 to 50 years ago encompassed a realistic expectation of the liabilities that would be incurred in the 1980's and beyond.

Though inconceivable, the exposure theory has been adopted by three courts.[55] This process of "socializing" liability, of applying "deep pockets" theory rather than traditional principles of contract law to insurance coverage issues for cumulative disease cases, ostensibly provides open-ended coverage to the insured. It purports to extend the insured's protection and insulate it from the necessity of compensating the victims of its actions and inactions from its own resources. It seeks validity in the argument that it fosters social policy by making available to the victims of asbestos-related diseases greater resources from which compensation may be obtained. From the perspective of a claimant, the exposure theory and its stacking of insurance coverage does create - - at least on paper - - an ideal situation. However, this seemingly endless supply of money is derived more from fantasy than from sound legal and insurance principles.

In point of fact, there are no "deep pockets." The fallacy of the exposure theory is that rather than extend insurance

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55. Insurance Company of North America v. Forty-Eight Insulations, 633 F.2d 1212 (6th Cir. 1980); Keene Corporation v. Insurance Company of North America, Civil Action No. 78-1001, United States District Court for the District of Columbia (1981); Porter v. American Optical Corp., ____F.2d ______(5th Cir. 1981).

coverage to cover all possible losses, it in effect forecloses the amount of insurance that is available. Because underwriters of thirty and forty years ago did not perceive any great risk from asbestos claims, premiums charged were relatively small. Because claims did not arise during the terms of those policies, reserves were not established. Now, with asbestos claims inundating our judicial system, proponents of the exposure theory are demanding that a group of financial institutions- - members of the insurance industry - - suddenly provide the resources necessary to cover incurred and anticipated liability. The ability of insurers to handle on an "exposure basis" the thousands and thousands of asbestos cases that will be filed in the future is limited. The costs and expenses necessary for doing so will, as stated above, place serious financial burdens on insurers.[56] With potential litigation costs and expenses far exceeding available reserves and present liquid capital, insurers will be hard-pressed to meet defense and indemnification obligations. Some will fail. Others will be forced to liquidate assets to meet these needs. Higher premiums, limited investments and curtailment on insurance actually provided will occur. Because there are no free rides in society, the public will ultimately bear the burden of compensating asbestos victims. With insurance money unavailable, we can expect increased resort to public assistance programs, the funding for which will be borne by the general public through federal and state taxes.

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[56] It is apparent that the exposure theory will also be harmful to members of the asbestos industry. Inability of insurers to administer claims on an exposure basis will ultimately leave the assets of the defendants open to successful claimants. Parties who are unable to prove significant amounts of early insurance coverage will find that the exposure theory will require that they bear significant portions of defense and indemnification costs and expenses.

The latter situation is presently confronting Raybestos-Manhattan, Inc., a corporation heavily engaged in asbestos litigation (approximately 5,375 asbestos-related complaints were reportedly pending against it as of January 31, 1981). Inability of the company to document its insurance coverage prior to September, 1951, and uncertainty regarding the adequacy of its coverage from that date until May, 1962, has created concern as to Raybestos-Manhattan's financial condition. See News Release dated March 13, 1981, reprinted in ASBESTOS LITIGATION REPORTER, March 27, 1981, at 3156.

VI. CONCLUSION: THE NEED FOR A FEDERAL SOLUTION

As the preceding sections of this report indicate, we are presently confronted with a pervasive social problem. Arising out of extensive commercial and industrial application of asbestos, this problem can be first perceived from the perspective of the millions of individuals who are actual or potential victims of one or more of the various asbestos-related diseases. Because existing workers' compensation and public assistance programs fail to adequately compensate these individuals for the losses they have sustained, resort has been made to the tort litigation system. The number of claims filed to date and those reasonably anticipated in the future place severe burdens on an already overworked judicial system. Moreover, the volume of claims and the complexity of the legal and factual issues involved causes long delays in the litigation process, thereby preventing the injured claimants from obtaining timely compensation.

The burdens placed on victims of asbestos are exacerbated by those felt by the asbestos defendants and their insurers. High jury awards, costs necessitated for purposes of defense and indemnification, and judicial expansion of concepts and theories of tort liability have caused serious financial problems for many companies. The end result may well be a situation in which many of these parties will face economic failure, and in which there will be a contraction of our insurance system in all sectors of the economy.

From any objective standard, it is apparent that we can not continue to deal with this problem through traditional systems without incurring additional and substantial economic and social costs. As it is reasonable to anticipate that the future will bring no relief so long as conventional methods are used, a new approach is required.

For a number of reasons, a federal response is necessitated. First, the principal methods of compensating asbestos victims--workers' compensation, public assistance programs, and the tort litigation system--are inadequate and inequitable and, as demonstrated previously, fraught with very serious ramifications. It is now time to fashion a compensation system that will appropriately balance the interests of all parties concerned. This system can only come by means of federal legislative action.

Second, because the asbestos problem is so pervasive, it affects individuals and interests throughout the United States. Legislation dealing with a problem of this magnitude should not be left to individual state action. The problem itself extends beyond the mere interests of a particular state or states. It affects interstate commerce and the general welfare, thereby requiring a uniform national solution rather than the conflicting solutions that might otherwise be devised on a state-by-state basis. As prior experience with state adoption of uniform codes and laws amply demonstrates, it may take a number of years for states to take appropriate action. There would be no guarantee of consistency or even appropriate action by all concerned. Moreover, the very nature of the problem demonstrates that individual states lack sufficient resources to appropriately deal with it.

Third, the federal government, through two dimensions of its activities, bears a portion of the responsibility for the incidence of asbestos-related diseases. Many of the individuals who today suffer from such diseases were first (and in many cases only) exposed to asbestos while working in shipyards during World War II. The asbestos to which these individuals were exposed was required by the government for use in ship construction, and was often actually supplied by it. In effect, we are still paying for the war effort, only now it is private industry, rather than the government, that is doing so.

Citizens have also traditionally looked to the federal government to protect them from threats to public health. Whether this responsibility is viewed with hindsight--as is the situation of the asbestos industry and its insurers--or as a continuing obligation to maintain the public health and welfare, a federal role in dealing with this problem is reasonably necessary.

Finally, it is only recently that we have begun to understand the scope and consequences of this problem. While the courts have attempted to deal with the problem of compensating innocent victims of latent and cumulative diseases through new legal doctrines, they have done so with an imperfect comprehension of the nature of the problem and of the economic and social effects of their actions. It is now necessary to centralize and focus efforts on this pervasive problem so that effective and comprehensive attention may be given to it.

The dramatic problems of the current situation require immediate attention. Failure to implement any efforts in this direction will serve to exacerbate the situation. Many difficult factors will have to be balanced in arriving at an appropriate federal solution, including provision of adequate and equitable compensation, defining an appropriate role for federal activity and participation, specifying the liability and expenses that the asbestos and insurance industries must bear, and ensuring public accountability of the system that is ultimately devised. Because today's situation represents a public problem rather than a mere dispute between asbestos victims, their tortfeasors and the insurers for the latter, the response to it must come from the public sector. Ultimately, if we cannot demonstrate the wisdom and boldness that the public requires to initiate fundamental changes in the manner in which we allocate resources among the various parties involved, we will pay dearly for the impact that our failure to do so will have on our entire socio-economic system.

APPENDIX A

SELECTED ASBESTOS PRODUCTS AND THEIR END USES

Floor Tile

- Office floors
- Commercial floors
- Residence floors

Gaskets and Packings

- Valve components
- Flange components
- Pump components
- Tank sealing components

Friction Products

- Clutch/transmission components
- Brake components
- Industrial friction materials

Paints, Coatings and Sealants

- Automotive/Truck body coatings
- Roof coatings and patching compounds

Asbestos-Reinforced Plastics

- Electric motor components
- Molded product compounds for high-strength/weight uses

Asbestos Cement Pipe

- Chemical process piping
- Water supply piping
- Conduits for electric wires

Asbestos Textiles

- Packing components
- Gasket components
- Roofing materials
- Commercial/industrial dryer felts
- Heat/fire protective clothing
- Clutch/transmission components
- Electrical wire and pipe insulation
- Theater curtains and fireproof draperies

Asbestos Paper

- Gas vapor ducts for corrosive compounds
- Fireproof absorbent papers
- Table pads and heat protective mats
- Heat/fire protection components
- Molten glass handling equipment
- Insulation products
- Gasket components
- Underlayment for sheet flooring
- Electric wire insulation
- Filters for beverages
- Appliance insulation
- Roofing materials

Asbestos Cement Sheet

- Hoods, vents for corrosive chemicals
- Chemical tanks and vessel manufacturing
- Portable construction buildings
- Electrical switchboards and components
- Residential building materials
- Molten metal handling equipment
- Industrial building materials
- Fire protection
- Insulation products
- Small appliance components
- Electric motor components
- Laboratory furniture
- Cooling tower components

Source: Asbestos Information Association/North America.

Reprinted From: U.S. Department of Health, Education and Welfare, ASBESTOS: AN INFORMATION RESOURCE(1978), at 14.

APPENDIX B

Companies involved in asbestos litigation include:

Aber Company, Inc.
Acands, Inc.
Ace Asbestos, a.k.a.
  Empire Ace Insulation Mfg. Corp.
A.C.&S., Inc.
Advocate Mines, Ltd.
Aetna Casualty & Surety Company
Affiliated F.M. Insurance Company
AIU Insurance Company
Aloha State Sales Company, Inc.
Alpha Associates, Inc.
Alpha Wire Corporation
Amatex Corporation
Amchem Products, Inc.
American Asbestos Company
American Asbestos Textile Corporation, a.k.a.
  Ametex Corporation
American Brands, Inc.
American Fire & Casualty Company
American Home Assurance Company
American Insurance Company
American Motorists Insurance Company
American Mutual Insurance Company
American Mutual Liability Insurance Co.
American Optical Corporation
American Petrofina
American Reinsurance Company
American Tobacco Company
American Universal Insurance Company
Amoco Chemicals Corporation
Anchor Packing Company
Armstrong Contracting & Supply Company
Armstrong Cork Company
Asarco
Asbestos Contractors of Omaha, Inc.
Asbestos Corporation, Ltd., Canadian
Asbestos Corporation of America
Asbestos Distributors, Inc.
Asbestos Insulation & Supply Company
Asbestos Investment, Ltd.
Asbestos Pty., Ltd.
Asbestos Textile Institute
Assicurazioni Generali London, a.k.a.
  Lloyd's Underwriters
Asten Group
Asten Hill
Atlantic Felt & Gasket Company, Inc.
Atlas Asbestos Company
Axtel

APPENDIX B (Continued)

Babcock Wilcox Company
Baldwin-Ehret-Hill, Inc.
J.W. Bateson Company, Inc.
B&B Engineering & Supply Co., Inc.
Beith, John (S.A.) Pty., Ltd.
Bell Asbestos Mines, Ltd.
Bellefonte Insurance Company
Bendix
A.H. Bennett Company
Bermuda Fire & Marine Ins. Company, Ltd.
Bethlehem Steel Corporation
Black & White Company
Brand Insulations, Inc.
Briggs Manufacturing Company
British Metal Corporation
Brown & Williamson Tobacco Corp.
Burlington Industries
Calabrian Company, Inc.
Calabrian International Corp.
Canadian Indemnity Company
Canadian Johns-Manville Asbestos, Ltd.
Cape Asbestos Company, Ltd.
Cape Asbestos Fibres, Ltd.
Cape Blue Mines
Cape Industries, Inc.
Carey Canadian Mines, Ltd.
Philip Carey Corporation
Cassiar Asbestos Corporation, Ltd.
Catalytic, Inc.
Celotex Corporation
Centaur Insurance Company
Centex Corporation
Centex Homes of New Jersey, Inc.
Central Asbestos Company, Ltd.
Central Ice Machine Company
Central Insulation & Engrg. Co.
Central National Ins. Co. of Omaha
Certain-Teed Corporation
Charter Insulation, Inc.
Charter Security Life Insurance Co.
Chicago Bridge & Iron Company, Inc.
Chrysler Corporation
Claveras Asbestos, Ltd.
Colonial Sugar Refining Company, Ltd.
Colt Industries, Inc.
Columbia Casualty Company
Combustion Engineering, Inc.
Commercial Union Insurance Company
Construction Specialist Company, Inc.
Continental Casualty Company
Corning Glass Works Corporation
G. & W. H. Corson

APPENDIX B (Continued)

Crown Cork & Seal Company, Inc.
Dana Corporation
Delaware Asbestos & Rubber Company
M.H. Detrick Company
The Dominican Insurance Company, Ltd.
Dow Chemical
Eagle Company
Eagle-Picher Industries, Inc.
Eastern Refractories Company, Inc.
E.G.N.E.P., Ltd.
Employers Insurance of Wausau
Employers Reinsurance Company
Erlich-Baldwin Hill
E.T.N.E.P.
Falcon Insurance Company
Faco & Gaf Corporation
Federal Ski & Engineering Corp.
Ferguson-Smith
Ferro Corporation
Fibreboard Corporation
Fibreboard Paper Products, a.k.a.
PABCO Company
Fireman's Fund Am. Life Ins. Co.
First State Insurance Company
Flextallic Gasket Company, Inc.
Flintkote Building Products Company
The Flintkote Company
Ford Motor Company
Forty-Eight Insulations, Inc.
Benjamin Foster Company
Frigitemp Corporation
Fruit Growers Express Company
GAF Corporation
Garlock Packing Company/Garlock, Inc.
Gefco
General Analine & Film Corporation
General Dynamics Corp., Electric Boat Division
General Mining & Finance Corporation, Ltd.
General Motors Corporation
Gibbs, Anthony & Company, Ltd.
Gibraltar Casualty Company
Edgar H. Givens/Givens Machine & Mfg. Co.
Glaser Brothers
Glen Alden Corporation, a.k.a.
Rapid American Corporation
Granite State Insurance Company
Great American Insurance Company
Greene Tweed & Company
Gulf, Mobile & Ohio RR
Gustin Bacon Mfg. Co.
Hartford Accident & Indemnity Company

APPENDIX B (Continued)

Sid Harvey Industries
Highlands Insurance Company
Holt, John & Company
Home Insurance Company
Hooker Chemical Company
Illinois Central Gulf
Illinois National Insurance Company
Industrial Health Foundation, Inc.
Industrial Service & Engineering Company
Inseco, Inc.
INSCO, Ltd.
Insulation Services, Inc.
Insurance Company of North America
International Surplus Lines Ins. Co.
Interstate Fire & Casualty Company
Isthmian Steamship Corporation
ITT GRINNELL CORPORATION
Janos Asbestos Company, Inc.
Jelco, Inc.
Johns-Manville Asbestos, Ltd.
Johns-Manville Canada, Inc.
Johns-Manville Corporation
Johns-Manville International Corp.
Johns-Manville Products Corporation
Johns-Manville Sales Corporation
Johnson Asbestos Corporation
Johnson Insulation Company
Kaiser Aluminum & Chemical
Kaiser Cement & Gypsum Corporation
Kansas City Insulation
Kansas Insulation, Inc.
Kay Asbestos Company
Keasby-Mattison Company
Robert A. Keasby Company
Keene Building Products, Inc.
Keene Corporation
Kelley Asbestos Products Co., Inc.
Peter Kiewit Sons' Company
Kurman
Lake Asbestos Corp. Of Quebec
Lake Asbestos Mining of Quebec, Ltd.
Leeds Painting & Decorating Corporation
Lexington Insurance Company
Liberty Mutual Insurance Company
Liggett Group, Inc.
Liggett & Myers Tobacco Co., Inc.
Lipe Rollaway Corporation
Litton Systems, Inc.
Lloyd's of London
Lockheed Aircraft Corporation
Loew's Theatres, Inc.

APPENDIX B (Continued)

London & Edinburgh General Ins. Co., Ltd.
Lorillard
Lukes Brothers Steamship Company
Mack Trucks, Inc.
Marlime Chrystotile Asbestos Corp., Ltd.
Marsh & McLennan, Inc.
McDonnell Douglas Corporation
Mead Corporation
N.F. & L.I. Medford
Mentor Insurance Company (U.K.), Ltd.
Metate Asbestos Corporation
Metropolitan Life Insurance Company
Midland Insurance Company
Midwest Insulation Services, Inc.
Millitt Enterprises, Inc.
Minnesota Mining & Mfg. Company
Miracle Adhesives
Mutual Reinsurance Company, Ltd.
National Gypsum Company
National Insulation Mfrs. Assn., Inc.
National Services Industries
National Union Fire Ins. Company
National Union Fire Ins. Co. of Pittsburgh
New England Insulation Company
Newport News Shipbuilding & Dry Dock Co.
Nicolet Industries, Inc.
Norca Asbestos Corporation
North American Asbestos Corporation
North Brothers
Northbrook Insurance Company
Northeastern Fire Ins. of Pennsylvania
Nuturn Corporation
Daniel O'Connell's Sons, Inc.
Olympic Steamship Company
Owens-Corning Fiberglas Corporation
Owens-Illinois Glass Company
Owens-Illinois, Inc.
PABCO Industrial Products--Division of
  Pabco Industries, Inc.
Pacific Asbestos Corporation, Ltd.
Pacor, Inc.
Pancon Corporation
Parker Falls Insulation
Pearl Harbor Naval Shipyard
Penn Pipe Hanger Company
Pennsylvania Manufacturers Assn.
C.J. Petrow & Company
Philip Morris, Inc.
Phoenix Asbestos Company
Pioneer Pipe & Supply Company
Pittsburgh Coke & Chemical Company
Pittsburgh Corning Corporation

APPENDIX B (Continued)

Pittsburgh Plate Glass Company
Plant Asbestos
H.K. Porter Company, Inc./
  H.K. Porter & Son Asbestos
Porter Hayden Company
P.P.G. Industries, Inc.
Prudential Line, Inc.
Prudential Reinsurance Company
Prudential Steamship Corporation
Puritan Insurance Company
Rapid-American Corp., Inc.
Raw Asbestos Distributors
Raybestos-Grey Rock
Raybestos-Manhattan, Inc.
Reliance Insurance Company
R.J. Reynolds Tobacco, Inc.
Rhodesian Asbestos, Ltd.
Rock Wool Mfg. Company, Inc.
Rockwell International
Rocky Mountain Int'l Ins., Ltd.
Rogers Corporation
Roper-Anchem, Inc.
Royal Indemnity Ins. Co.
Rubbermaid Corporation
Ruberoid Company
Ryder Industries, Inc.
S.A. Asbestos Trading, Ltd.
St. Katherine Insurance Company, Ltd.
Sea-Land Service, Inc.
Sepco Corporation
Shook & Fletcher Insulation Company
George Short Company
Southern American Insurance Company
Southern Textile Company
V/O Soyuspromenport
Special Materials, Inc.
E.R. Squibb & Sons, Inc.
Standard Asbestos Mfg. & Insulation Co.
Martin Stern, Jr., Architect
J.P. Stevens & Company, Inc.
Studebaker-Worthington
Sun Insurance Offices, Ltd.
Swiss Insurance Company
Taylor Insulation Company
Taylored-Industries, Inc.
Thermal Products, Inc.
W.J. Thompson, Inc.
Thorson Company of Massachusetts, Inc.
Travelers Indemnity Company
Travelers Indemnity of Rhode Island
Turegum Insurance Company
Turner & Newall, Ltd.

APPENDIX B (Continued)

Turners Asbestos Fibres, Ltd.
Unarco Industries, Inc., f.k.a.
  Union Asbestos & Rubber Co.
Unarco-Pitcher Industries
Uniroyal
United Asbestos, Inc.
U.S.A. General Dynamics
U.S. Fire Insurance Company
U.S. Steel
R.T. Vanderbilt Company
C.T. Vaughn/Plibrica Sales & Service
Vaughn Insulation
Walbrook Insurance Company, Ltd.
Borg Warner Corporation
Watson Geach & Company, Ltd.
S.K. Welman Corporation
Wentz Plumbing & Heating
Western Insulation Company
Westinghouse Electric Corporation
Foster Wheeler Corporation
Grant Wilson, Inc.
World Bestos
World Trade Center
T.H. Wotherspoon/
  Midwest Asbestos & Insulation Co.
Yasuda Fire & Marine Insurance Company

SOURCE: ASBESTOS LITIGATION REPORTER (2/13/81)
NOTE: The listing provided above was compiled by editors of the ASBESTOS LITIGATION REPORTER from various court documents that have been gathered by it.

APPENDIX C

The declaratory judgment actions concerned with interpretation of insurance policy language are:

1. Insurance Company of North America v. Forty-Eight Insulations, Inc., 633 F.2d 1212 (6th Cir. 1980).

2. Porter v. American Optical Corp., _____ F.2d _____ (5th Cir. 1981)

3. Insurance Company of North America v. Nicolet Industries, Inc., No. 77-971955, Court of Common Pleas, Cuyahoga County, Ohio.

4. GAF Corp. v. Insurance Company of North America, No. 286217, Superior Court of the State of California for the County of Los Angeles.

5. Zurich Insurance Company v. Raybestos-Manhattan, Inc., No. 78-L-8760, Circuit Court, Cook County, Illinois.

6. The Celotex Corp. v. Aetna Casualty & Surety Co., No. 79-5885, 13th. Circuit Court, Hillsborough County, Florida.

7. Crown Cork and Seal Co. v. Aetna Casualty & Surety Co., No. 1292, Court of Common Pleas, Philadelphia County, Pennsylvania

8. Keene Corp. v. Insurance Company of North America, No. 78-1011, United States District Court for the District of Columbia.

9. Eagle-Picher Industries, Inc. v. Liberty Mutual Ins. Company, No. 78-2739-2, United States District Court for the District of Massachusetts.

10. Johns-Manville Corp. v. Home Ins. Co., No. 765226, Superior Court of the State of California for the City and County of San Francisco.

11. Commercial Union Insurance Co. v. Johns-Manville Corp. No. 80-306-N, United States District Court for the District of Massachusetts.

12. Standard Asbestos Manufacturing & Insulating Co. v. Royal Indemnity Insurance Co., No. CV80-14909, Circuit Court, Jackson County, Missouri.

13. Armstrong Cork Co. v. Aetna Casualty & Surety Co., No. C-315367, Superior Court of the State of California for the County of Los Angeles.

APPENDIX C (Continued)

14. Liberty Mutual Insurance Company v. Armstrong Cork Co., No. 80-429-G, United States District Court for the District of Massachusetts.

15. Fireman's Fund Insurance Co. v. Fibreboard Corp., No. 753885, Superior Court of the State of California for the City and County of San Francisco.

16. American Mutual Liability Insurance Co. v. Eastern Refractories Co., Inc., No. 80-3768, Superior Court, Middlesex Division, Commonwealth of Massachusetts.

17. American Motorists Insurance Co. v. Philip Carey Corp., No. 79 Civ. 0518, United States District Court for the Southern District of New York.

18. Commercial Union Insurance Co. v. Unarco Industries, Inc., No. 81-L-802, Circuit Court of Cook County, Illinois.

19. A C & R Insulation Co., Inc. v. Fireman's Fund Insurance Company, No. CA 350-81, Superior Court of the District of Columbia, Washington, D.C.

20. Commercial Union Insurance Co. v. Sepco Corporation, No. 81-769, United States District Court for the Eastern District of Louisiana.

Parties involved in these actions include:

Forty-Eight Insulations, Inc.
American Optical Corporation
Nicolet Industries, Inc.
Raybestos-Manhattan, Inc.
The Celotex Corporation
Crown Cork and Seal Company
Keene Corporation
Eagle-Picher Industries, Inc.
Johns-Manville Corp. (and subsidiaries)
Standard Asbestos Mfg. & Insulation Co.
Armstrong Cork Company
GAF Corporation
Fibreboard Corporation
Philip Carey Corporation
Unarco Industries, Inc.
Sepco Corporation
A C & R Insulation Company, Inc.
Eastern Refractories Company, Inc.
Aetna Casualty & Surety Company
Affiliated F.M. Insurance Company
AIU Insurance Company
American Home Assurance Company

APPENDIX C (Continued)

American Insurance Company
American Mutual Insurance Company
American Reinsurance Company
American Universal Insurance Company
INSCO, Ltd.
International Surplus Lines Insurance Co.
Liberty Mutual Insurance Company
Mentor Insurance Company (UK), Ltd.
Northbrook Insurance Company
Prudential Reinsurance Comapny
U.S. Fire Insurance Company
Travelers Indemnity Company
Zurich Insurance Company
Commercial Union Insurance Company
Federal Insurance Company
Travelers Indemnity of Rhode Island
American Motorists Insurance Company
Falcon Insurance Company
Bellefonte Insurance Company
Bermuda Fire & Marine Insurance Co., Ltd.
The Canadian Indemnity Company
Columbia Casualty Company
Centaur Insurance Company
Continental Casualty Company
The Dominican Insurance Company, Ltd.
Employers Insurance of Wausau
Employers Reinsurance Company
First State Insurance Company
Gibraltar Casualty Insurance Company
Hartford Accident & Indemnity Company
Highlands Insurance Company
Home Insurance Company
Illinois National Insurance Company
Insurance Company of North America
Lexington Insurance Company
Midland Insurance Company
National Union Fire Insurance Company
Northeastern Fire Insurance of Pennsylvania
Sun Insurance Offices, Ltd.
Turegum Insurance Company
Puritan Insurance Company
Rocky Mountain International Ins., Ltd.
Royal Indemnity Insurance Company
Royal Globe Insurance Company
Fidelity and Casualty Company of New York
Truck Insurance Exchange
The Insurance Co. of the State of Pennsylvania
CNA Casualty of California
The Central National Insurance Company of Omaha
Mission Insurance Company
Pine Top Insurance Company
New Hampshire Insurance Company

APPENDIX C (Continued)

Walbrook Insurance Company, Ltd.
"Winterthur" Swiss Insurance Company
El Paso Insurance Company, Ltd.
Yasuda Fire & Marine Insurance Company
St. Katherine Insurance Company, Ltd.
Assicurazioni Generali London
Transamerica Insurance Company
Home Indemnity Company
Integrity Insurance Company
North River Insurance Company
Lloyd's of London
Reliance Insurance Company
Great American Insurance Company
Interstate Fire and Casualty Company
Various Underwriters at Lloyd's, London
Granite State Insurance Company

Mr. **Gore**. Thank you very much. Our final witness is Mr. Stephen M. Soble, with Surrey & Morse, here in Washington. Mr. Soble, welcome. Your text will be put in the record, and if you would care to summarize any of it, please do so.

STATEMENT OF STEVE SOBLE, ATTORNEY AT LAW, SURREY & MORSE, WASHINGTON, D.C.

Mr. **Soble**. Thank you very much. Mr. Chairman, we have heard today how the tort system and the worker's compensation system are in a shambles, but it is my belief that the legal system, like a phoenix, may arise from the ashes. What we need to do as a nation is to focus on what makes toxic substance pollution-related injuries, as a category, as a class, different from other types of problems. We need to focus on the values that we, as a society, have toward our people. In light of the values that we hold and the systemic limitations that exist in the state of the art in our science and in our legal system, we must fashion a new legal system to handle this problem. I would first like to focus on a couple of the values which I think I have heard discussed today and which I think our nation should hold dear.

First and foremost, Mr. Chairman, I was very pleased to hear you say that prevention was the number one objective. Along with prevention, we need to reduce risk to human health. It is insane to spend the kind of money that we are going to have to spend, directly or indirectly, on wasted human lives if we are not to create a legal system which encourages and promotes the prevention of injury to human health.

Second, I think we need to focus on data dissemination. What we have heard from Dr. Enk earlier today demonstrates that there are much data which the scientific community needs to have so that the clinicians and the occupational health specialists, can focus on specific and practical ways for reducing risk to human health.

Third, I think we need to increase our data base, for reasons similar to the problem of data dissemination.

Fourth, we need to improve the quality of medical attention, and that includes medical training as Dr. Enk mentioned earlier.

Fifth, I think we need to develop a system that focuses on deterrence. If there is anything that the American legal system has taught us, it should be that too much direct regulation does not work. The American businessman, the American individual, is free-spirited. What we have learned from the operation of our legal system is that a high degree of self-regulation can work if the penalties are in place and are firmly and forcefully applied. Among all of the countries, the United States has the highest rate of voluntary compliance with our graduated income tax system in the history of the world. That is a system that operates on self-regulation.

Sixth, I think we need to establish a speedy and informal dispute resolution mechanism. We cannot expect that any formal tribunal, whether a court, a worker's compensation board, or a system of administrative law judges, can handle all of the cases that are likely to arise. We are going to need a way of differentiating between the standard case and the special case. We are also going to need an informal dispute resolution mechanism that can be applied to handling some of the factual ambiguity and some of the pitfalls that are likely to occur.

Seventh, we need to create a legal system that will pay strict attention to principles of fairness and fiscal integrity. With respect to fairness, I submit that it is part of our American tradition, under the Anglo-Saxon principles of American jurisprudence, that the wrongdoer be held liable for what he does, and that it is somehow unfair to spread the risk of loss before injuries occur for the benefit of an entire industry. It is important to single out who the worst of the wrongdoers are so that they can clean up their act, so that fewer people can be injured—if our chief goal is, indeed, prevention.

Finally, we need to focus on fair compensation mechanisms. That is probably the easiest of the goals to achieve. We already have very well established principles in the legal system for valuing losses. We know how to define remedies. We can apply legal principles in conjunction with economic principles for establishing the value of losses.

Once we have established our values, we need to focus on the reality that we have heard today, that there exists and there will always exist a certain degree of uncertainty with respect to the issue of determining scientific causation. The way the American legal system is established now, the analysis applied to the issue of causation does not permit a court or any adjudicative body to seek to define how much uncertainty there really is. In every case of toxic substance pollution, there will be some uncertainty, but the task would be vastly different if we could quantify these ideas to have a case where there is 1 percent scientific uncertainty as opposed to a case where there is 49 percent scientific uncertainty. If you have as much as 49 percent uncertainty, then the degree of certainty that you are allocating is out of synchronous with the notion of the preponderance of the evidence.

I would ask, Mr. Chairman, that a letter which I submitted to Congressman Bob Eckhardt on September 11, 1978, when hearings were held on H.R. 9616 in the 95th Congress, be submitted to the committee, wherein I explain how the issue of scientific uncertainty can be handled.

Mr. **Gore**. We will be glad to get it.

Mr. **Soble**. Also at that time, I submitted a law review article appearing in the Harvard Journal on Legislation, volume 14, page 683, which I would also like to submit to the committee.

Mr. **Gore**. We have copies of that. Thank you very much.

Mr. **Soble**. In the law review article and in the letter submitted previously to the Congress, I focused also on the issue of how a compensation system may develop sound principles of cost allocation. Specifically, I have tried to focus on two types of deterrence: General deterrence and specific deterrence. These are ideas that were alluded to earlier today. But the point I would like to make about the need for having both general and specific deterrence is that by overlapping those two systems of deterrence, our society ought to be able to achieve the maximum level of risk avoidance. To illustrate, general deterrence would be, for example, the application of a flat tax against an entire industry, as was proposed earlier today. The net effect of such a user fee would be to allow everyone in the industry to pass through their pro rata share of that tax to the ultimate consumer. The tax measure may be needed to raise revenues. But, in addition to a general deterrence mechanism, if a specific deterrence mechanism were also imposed, actual wrongdoers could be held fully liable for the actual losses they cause. Under such a system, a particular wrongdoer would not be able to pass through those to the ultimate consumer the general and specific deterrence costs because to do so would place the wrongdoer at a competitive price disadvantage with his competitors in the industry.

Another point of analysis that I would like to raise is: How do we really decide when the legal system should recognize the existence of causation or the likely existence of causation to a high enough degree of certainty to allow compensation to be awarded. I submit that there is an inherent discontinuity between the way in which the scientific community approaches the issue of causation and the way in which the legal community approaches that issue. This is a discontinuity which will not erode over time. For the lawyer, causation is something that is very logical and that, most importantly, occurs in a direct time sequence, chronologically, from the actual occurrence of the event until the actual injury. A lawyer will argue to a jury and lawyers will try to rationalize to themselves that a particular victim was exposed to a particular chemical, over a particular period of time, and that because of some internal physiological effects of the chemical on the injured person, the injury resulted. A scientist will rarely think about that issue that way.

For a scientist to think about an issue in chronological sequence is to turn his back on the scientific method. When a scientist applies the scientific method to the issue of causation, he takes the chronological analysis we have just gone through for the lawyer and flips it upside down. The scientist says: "We have a victim. What is the most likely scientific reason that I can offer to explain why he is exhibiting the symptoms he now has?"

The scientist finds the best explanation available—not necessarily the right one—and then goes on to the next step in the overall analysis. At the next step, the scientist may say: "There is something physiologically impaired in this person, and the types of chemical or physical misfunctions that can cause these symptoms are these." And the scientist might list five different possible causes. At that point in the analysis, the scientist will exercise his best scientific judgment, to the highest degree of his trained medical certainty, to try to ascertain which of those five possibilities is the likeliest theory at this point to pursue. Taking that likely theory, he will go back further in the chain of events to try and actually identify the chemical, the time nexus, and the actual causal agent or the polluter.

The entire scientific analysis is necessarily based on a string of reconstructed theories which, at each step along the line, are based on merely a reasonable degree of medical certainty and a good degree of judgment. Because of this, we are compounding the degree of uncertainty which is always going to exist in a scientific causation analysis. That is something that we must recognize we have to live with, and we must develop our legal system so that it can accommodate that reality.

Finally, I would like to say that in order to prevent the preventable, in my view it is possible for this Congress to adopt a piece of national legislation that would provide for the compensation of actual victims of toxic substance pollution that would hold actual polluters liable, that would not drain needed resources from the general revenues of the U.S. Government or of any State government, and that such a mechanism can be developed to operate within the principles of fairness as they have evolved through the Anglo-Saxon system of law. I believe that this system is one that has been articulated in the 95th Congress, in H.R. 9616, again in the 96th Congress in a revised version of that bill, H.R. 5074. I would submit that bill for consideration by this committee. Thank you, Mr. Chairman.

[The prepared statement of Mr. Soble follows:]

STATEMENT OF STEPHEN M. SOBLE, ATTORNEY, WASHINGTON, D.C.

Mr. Chairman, Members of the Committee, I have been asked to discuss with the Committee the inadequacies which exist in the tort law system, the workers' compensation system, and other compensatory mechanisms as they are applied to adjudicating cases involving personal injuries arising from toxic substance pollution. One important element of the inadequacies which exist is the way in which these systems handles or mishandles the inquiry into scientific causation. As a prelude to our discussion, I would like to examine a few of the elements of the value system which inform our society's requirement that the causal link between the actions of an alleged wrongdoer and the injured person to be established by logical, morally defensible standards, which constitute legal causation. For purposes of this discussion, let us put to one side the concept of no-fault legislation, which could render moot the inquiry into causation.

In recent years, much has been written about the operation of the tort law system, the workers' compensation system, and other means of compensation for victims of toxic substance pollution. In addition, there have been numerous proposals before Congress which would create mechanisms for limiting the liability of a wrongdoer on grounds that the expense of compensating victims of toxic substance pollution or the volume of claims have become too burdensome for a particular industry or for the country to bear. There have been proposals which would tinker with the existing adjudicatory mechanisms. For example, some have proposed that we simply shift the burden of persuasion in toxic substance pollution tort cases or that we merely change the statute of limitations rules that apply to cases of toxic substance pollution-related injury. To tinker with one or two legal mechanisms without going to the heart and mind of the legal apparatus, would be to opt for the cosmetic and to shun the real needs of the country.

In my view, all of the existing legal mechanisms for handling the problem of compensating victims of toxic substance pollution are inadequate to handle cases of toxic substance pollution-related injury. These systems were never designed nor, as they evolved did they truly comprehend the uniqueness or the significance of toxic substance cases. Because tort, workers' compensation and other compensatory mechanisms are being asked to handle cases they weren't designed to handle, our country's needs are being inadequately served.

To serve our country's needs, I submit, there is a simple goal of which we should not lose sight. The legal system ought to operate so as to encourage and promote healthy and productive lives for the American people, whether in the workplace, in their homes or schools. This simple goal may be tempered with the recognition that the legal system should operate so as to foster productivity and economic vitality. Striking a balance between physical individual vitality and economic vitality means that no one is suggesting the creation of a risk-free society.

However, as we seek ways of striking this balance we should set out to rank what may be conflicting values. Among these values are:

(1) Prevention - The logical imperative to avoid injury by foresight, planning and care.

(2) Data Dissemination - To prevent injury, the primary risk avoiders - the people who can avoid injury - whether a corporate executive or a driver of a chemical tanker must have access to reliable accurate information. Scientists must have information to adequately assess "risk".

(3) Increasing the Data Base - To aid the work of epidemiologists, we must identify periods of exposure, nature of exposure, type of exposure and a host of other factors.

(4) Adequate Medical Attention - The speed of delivery and quality of medical services will be affected by our increased knowledge and the diligence with which we pursue the goal of prevention.

(5) Compensation - The standard should be clear: adequate compensation for actual losses without unjust enrichment.

(6) Deterrence - Simply stated, the compensation system should operate so as to deter actions which produce human injury.

(7) Speedy, Informal Dispute Resolution - Mechanism - Victims are not in a position to accept long delays or uncertainties in their recovery.

(8) Fiscal Integrity - The compensation mechanism should not operate so rigidly that it destroys the economic fabric of the

country. In accordance with Anglo-Saxon principles of law, wrongdoers should pay for the cost of the injuries they have caused. But, there should exist a mechanism for allowing costs to be responsibly absorbed.

In light of these values, it should be evident that the way in which the compensation system addresses the issue of causation will determine how the system works. The requirement of of causation and the rules by which causation is defined allow us to identify only those defendants who are to be held liable for causing the injury to the victim. Second, the requirement of causation enables us to identify victims (plaintiffs) who are entitled to recovery. Third, the causation requirement provides the logical and moral basis upon which an alleged wrongdoer can be held accountable for the injuries attributable to the defendant's actions or inactions.

Yet, under the tort law system for example, the gamesmanship of litigation -- the rules of discovery, the ability to hold certain evidence _in camera_ and the placing of the burdens of going forward and of persuasion on the victim can cloud or nullify the importance of being able to show with scientific evidence that exposure to substance X caused an injury to the victim. The why and how of scientific causation goes directly to the values of prevention and social economy -- yet the tort system thwarts the full recognition of these values.

Finally, the issue of scientific causation, as it applies to cases of toxic substance pollution, is constantly colored by the realization that no matter how much we know scientifically about an incident which may have occurred, there will remain a degree of uncertainty about the true, in-fact cause of the injury. The scientific methods, the hallmark of scientific inquiry, leads a scientist to reach judgments which are not a mirror image of the way in which traditional, pre-toxic substance causation was derived by the law. Changes are needed in the way in which the legal system deals with causation in toxic substance pollution cases, so that the legal system will recognize the existence of an element of uncertainty in all cases. By recognizing the existence of the element of uncertainty, we may begin to address the task of defining a mechanism for adjudicating cases of toxic substance pollution, with fairness for victims, scientists and industry. 1/

Thank you very much. I would be pleased to answer your questions.

1/ For further details on the points covered in this testimony, *see* Hearings before the Subcommittee on Consumer Protection and Finance of the Committee on Interstate Foreign Commerce, House of Representatives, 95th Congress, 2nd Session, Hearings on H.R. 9616, pages 277-309.

BIOGRAPHICAL STATEMENT OF
STEPHEN M. SOBLE

Mr. Soble is a practicing attorney in Washington, D.C. associated with the firm Surrey & Morse. He is appearing before the Subcommittee in his personal capacity as an attorney and student of the problems associated with toxic substance pollution-related injuries. He has not represented any party in any case involving toxic substance pollution, and he is not appearing on behalf of any client or interest group. His views expressed to the Subcommittee are his own and should not be attributed to his law firm or its clients.

Mr. Soble's publications include, "A Proposal for the Administrative Compensation of Victims of Toxic Substance Pollution: A Model Act" which appeared in Volume 14, The Harvard Journal on Legislation (1977). He has testified before the Subcommittee on Consumer Protection and Finance of the Committee on Interstate and Foreign Commerce of the House of Representatives in the 95th Congress on H.R. 9616. In the 96th Congress, H.R. 9616, with revisions, was reintroduced as H.R. 5074.

Mr. Soble is a Phi Beta Kappa graduate of Syracuse University and received his law degree from Harvard Law School, where he was statute editor of The Harvard Journal on Legislation.

September 11, 1978

Hon. Bob Eckhardt
Chairman, Subcommittee on
Consumer Protection and Finance
Committee on Interstate and
 Foreign Commerce
House of Representatives
Congress of the United States
Washington, D.C. 20515

Dear Mr. Chairman:

I am grateful to you and the Committee for giving me this opportunity to elaborate on some of the issues we discussed at the hearing on H.R. 9616, the Toxic Substance Pollution Victim Compensation Act, on March 7, 1978.

In this letter, I will address five issues: (i) rebuttable presumptions, burden of proof, and the types of proof to be proffered before the Administrative Board for Compensation of Victims of Toxic Substance Pollution (ABC), (ii) exclusivity of remedy, (iii) gross negligence, (iv) features of toxic substance pollution which suggest the need for a new statutory remedy, and (v) an erratum.

I. Section 14: Rebuttable Presumption and Burden of Proof

On March 7, 1978, we discussed at great length the meaning of a rebuttable presumption under section 14 of H.R. 9616. Despite extensive discussion of rebuttable presumptions and burden of proof, I feel that I failed to elucidate the technical and practical application of section 14 in my March 7 testimony. There is great historical precedent for confusion in the area of rebuttable presumptions. Over the years, two schools of thought have developed on this issue. One school of thought advocated by Professors Thayer and Widgmore saw a rebuttable presumption as merely a procedural device. A second school of thought, developed by Professors Morgan and McCormick suggested the opposite result -- that is, that a rebuttable presumption carried with it substantive legal meaning which would affect the outcome of an adjudication. I fear that my lack of understanding of this historical dichotomy contributed to whatever confusion may have been created by my testimony in March. For an excellent discussion of the historical differences between the Thayer-Widgmore and Morgan-McCormick schools of thought see, Wright and Graham, Federal Practice and Procedure, Chapter 4, §§5121-5129, at 537-637 (1977) (discussing the historical debate leading to congressional passage of Federal Rules of Evidence, Rule 301).

Rather than reopening an academic debate of no small enormity, I will simply state that the intent of section 14 was to adhere to the Thayer-Widgmore view of rebuttable presumptions. In order to elucidate what that means, I will discuss the proper definition of terms under section 14, the technical operation of the determination of causation under section 14, and the practical application of section 14. Since I believe that the intended meaning of section 14 can be clarified by redrafting, I will avoid intricate statutory analysis as much as possible.

A. Definitions

When the phrase "rebuttable presumption" is used, it means that the burden of going forward with evidence is henceforth placed on the party against whom the presumption operates. When the phrase "burden of proof" is used, it means a shift in the burden of persuasion necessary to carry the case, but not a shift in the applicable standard of proof to be applied by the ABC in weighing the evidence submitted in the case. Another way of referring to the burden of proof is to call it the "burden of persuasion". Although the language of section 14(b) and section 14(c) reflect a strong parallelism, a clear distinction must be made between the rebuttable presumption and the burden of proof. The rebuttable presumption and burden of proof sections, in fact, require the ABC to make two separate interpretations of fact. The first interpretation will be an interpretation of "basic facts" which may give rise to a rebuttable presumption. The second interpretation of the ABC will deal with facts which establish "sufficient evidence" and will involve the operation of section 14(c) concerning the burden of proof.

The definition of the terms "reasonable proof" and "sufficient evidence" is discussed below.

B. Goals of Section 14

Before we discuss the intended technical legal workings of section 14(a)(b)(c), we must understand the goals of this section. Section 14 attempts to catapult our knowledge of toxic substance-related health problems far beyond the level of knowledge which is attained under the operation of the current tort law system. The intent of section 14 is (1) to encourage all parties to place all of the available or obtainable scientific, technical, medical and legal data related to a particular toxic substance-pollution mishap before the ABC; (2) to permit a full investigation, inquiry, and debate concerning the most sophisticated learning on the issue at hand; (3) to permit the ABC to analyze the scientific, technical and medical data which, by its nature, is reflective of the highest state of the art; and (4) to require the ABC to determine and declare the existence of legal causation in cases of toxic substance pollution when, and only when, facts which establish sufficient evidence have been presented to the ABC, thus allowing the ABC to make a legal causation determination.

The full meaning of goals (3) and (4) will become apparent as we discuss the technical and practical operation of rebuttable presumptions and burden of proof. At this point, it should be noted, however, that the ABC is charged with a broader task than a common law court. A common law court is charged solely with judging and applying principals of fairness and justice under the law. While the ABC has an identical mandate, it is intended that the ABC's mandate go one critical step beyond that of a common law court. The ABC is also charged with determining causation under section 14 in order to protect the health of the American people. Thus, if there is a bias reflected in section 14, it is a bias towards (1) encouraging the production of the maximum ascertainable knowledge and data of all relevant aspects of toxic substance pollution-related diseases and (2) protecting human health, given the imperfect state of knowledge which is likely to exist in many cases.

C. The Technical Operation of Section 14

In brief outline, section 14 is intended to operate as follows: an injured person or someone acting on his behalf may present to the ABC an initial showing. The initial showing must include a good-faith demonstration of two "basic facts" supported by reasonable proof. A valid initial showing gives rise to the creation of the series of rebuttable presumptions. The rebuttable presumptions operate to encourage manufacturers to come forward with knowledge about toxic substance pollution-related injuries in five specific areas. In general, if a manufacturer comes forward with reasonable proof on any one of those five rebuttable presumptions, the rebuttable presumption will no longer operate. If, however, a manufacturer fails to come forward with any reasonable proof on a particular issue addressed by a rebuttable presumption, the rebuttable presumption then becomes a presumed fact. The ABC, under section 14, is then entitled to weigh all of the evidence before it. The ABC may weigh all of the proof submitted by the claimant as part of the initial showing. The ABC may weigh the presumed facts which may exist as a result of the failure of a manufacturer to meet his burden of going forward. The ABC may weigh the evidence submitted by a manufacturer as part of his effort to meet his burden of going forward. And, the ABC may take into account all evidence submitted by either the claimant or the manufacturer or any other party as permitted under this bill. Once all of the evidence has been submitted to the ABC, the ABC must then weigh the evidence in order to see whether "sufficient evidence" exists to permit the ABC to make a determination of causation. When the ABC weighs the evidence in order to determine whether or not sufficient evidence exists, the ABC must apply a preponderance of the evidence test. But, because of section 14(c) concerning the burden of proof, when the ABC applies the preponderance of the evidence test, the ABC shall place the burden of persuasion with respect to five particular issues on the manufacturer. As we will see from the discussion herein of section 14, the shifting of the burden of proof under section 14(c) will affect the outcome of the causation determination in only certain instances.

1. Reasonable Proof

The starting point for the operation of section 14 is the initial showing. The initial showing must include a good-faith demonstration of two "basic facts" as supported by reasonable evidence. These two "basic facts" are that the pollution which caused the injury at issue --

(1) travelled through an indicated pathway from the point of manufacture to the injured or diseased person; and

(2) resulted in the etiology of the injury or disease claimed under section 13."

To establish these two "basic facts", the ABC must have duly received and authenticated the showing. The basic facts must be supported by "reasonable proof". Reasonable proof is intended to be the lowest level of proof established by section 14. It is that level of proof which could reasonably support the true existence of the two "basic facts". Because of the nature of toxic substance pollution "reasonable proof" must be a flexible concept. Section 14(e) suggests that reasonable proof for purposes of an initial showing may include "all data, such as health and safety studies, relevant to the determination of causation...". Section 3(6) defines the term "health and safety study" to mean "any study of any effect of a chemical substance or mixture on health or the environment or on both, including underlying data and epidemiological studies; any study of occupational exposure to a chemical substance or mixture; any toxicological, clinical, and ecological study of a chemical substance or mixture; and any test performed pursuant to this Act. Recognizing that the definition of "health and safety study" and the applicability of section 14(e) to section 14(a) is merely illustrative of the types of proof which may be deemed reasonable, perhaps detailed discussion of a hypothetical situation will clarify why I believe that the term reasonable proof is incapable of precise statutory definition in cases of toxic substance pollution.

Recalling the hypothetical we discussed in March, let us assume Mr. Charles Tinsdale presents an initial showing which suggests that the Crud Manufacturing Company, or Crud, Inc., is responsible for his lung disease because of their airborne discharge of a toxic substance, XYZ. Mr. Tinsdale would be required to establish in his initial showing, the two "basic facts" supported by reasonable proof. A mere allegation that Crud, Inc. put XYZ into the air does not, it seems to me, reasonably support the necessary proposition that Mr. Tinsdale in fact inhaled air polluted by the chemical substance XYZ. To establish that the air which Mr. Tinsdale normally inhaled was contaminated by XYZ, Mr. Tinsdale must submit "reasonable proof". Such reasonable proof may be a scientific analysis of the air which Mr. Tinsdale inhales in an average 24-hour period, indicating, for instance, 0.004 parts per million (ppm) of XYZ or it may be an affidavit demonstrating that variable levels of XYZ are present in rain water which falls to the ground where Charles Tinsdale lives. Testimony that XYZ is an airborne toxic substance, not otherwise present in nature, and that a film of XYZ is present on the leaves of shrubs on Mr. Tinsdale's property may as a matter of science and logic constitute reasonable proof that he inhaled some amount of XYZ. A microscopic test of Mr. Tinsdale's hair follicles or a chemical analysis of the air and CO_2 Mr. Tinsdale exhales may constitute reasonable proof of Mr. Tinsdale's airborne exposure to XYZ. Thus, in general, reasonable proof consists of some demonstrative or opinion evidence which tends to support the factual propositions necessary to establish the logical elements of the "basic facts". Another way of viewing "reasonable proof" is to recognize that it is that type of proof which suggests enough plausibility in logic and enough creditibility in presentation to induce a reasonable person to remark, "You may be right, tell me more."

Permitting the ABC to define in its regulations what is meant by reasonable proof has merit. Assume the following situation. After seeing several initial showings involving XYZ, the ABC learns that a particular microscopic test of hair follicles is an accurate test for the presence of XYZ in the atmosphere, at certain specified levels. The ABC learns that this simple microscopic follicle test is less expensive and more widely available to the public than a scientific analysis of the inhaled or exhaled air. By rule-making, the ABC may state that a showing which indicates that a specified level of XYZ present in the claimant's hair as demonstrated by a microscopic follicle test adhering to established laboratory procedures (which the ABC may detail in its regulations) will be accepted as reasonable proof of the inhalation of XYZ in all subsequent cases. (Note that this conclusion would only be logical if the ABC had knowledge indicating that but for an airborne-source, chemical substance XYZ would not be present in the claimant's hair follicles.) Such a ruling by the ABC, however, must be deemed merely indicative of the type of proof which the ABC will accept as reasonable proof in suspected cases of XYZ poisoning. No matter how accurate the ABC believes this hypothetical microscopic follicle test to be, it will not be 100% accurate, nor applicable to every person. Flexibility in determining what constitutes reasonable proof is a necessary element of section 14.

It should be noted, however, that the rule-making procedure by the ABC in the hypothetical discussed above would be required to conform to the notice and participation requirements for rule-making under the Administrative Procedures Act.

2. The Effect of Reasonable Proof

Reasonable proof is intended to support in logic the alleged existence of the "basic facts" which are a necessary part of the initial showing. It is a necessary step in the creation of a rebuttable presumption. Assume that reasonable proof to support the two "basic facts" is submitted to the ABC. Also assume the initial showing is in all other respects valid. The initial showing demonstrating the basic facts as supported by reasonable evidence, gives rise to a series of rebuttable presumptions.

If reasonable proof is not available to support the basic facts of the initial showing, the rebuttable presumptions, of course, are not created. Subsequent initial showings may be submitted. But until an initial showing that is sound enough to create the rebuttable presumptions is submitted, the manufacturer, Crud, Inc., will not be required to participate in the proceedings of the ABC.

3. Rebuttable Presumptions

Whenever the basic facts of an otherwise valid initial showing are supported by reasonable proof, the initial showing will be sufficient to give rise to the rebuttable presumptions of section 14(b). Section 14(b) states that the five rebuttable presumptions are, in general, that:

1. The manufacturer did produce the toxic substance in question at the time and in the manner necessary to have caused the pollution;

2. The toxic substance was distributed through the pathway indicated by the showing;

3. The toxic substance did result in the etiology attributed to the toxic substance pollution by the showing;

4. The manufacturer was solely responsible for the toxic substance pollution in question; and

5. The toxic substance by itself, not a mixture or a synergistically formed toxic substance, comprised the polluting and injury-causing or disease-causing substance.

The meaning of a rebuttable presumption has been open to some historical debate. As intended in H.R. 9616, the term rebuttable presumption means the burden of going forward. Therefore, the creation of rebuttable presumptions under section 14 places a burden of going forward with information on the manufacturer with respect to each of five separate issues. The manufacturer need not rebut each of the five issues in order to escape liability. By the same token, as we will see, the mere fact that the manufacturer succeeds in rebutting each of the five issues does not necessarily mean that he will escape liability under the Act. The reason for this outcome, which may seem confusing at first blush, has to do with the requirement that the ABC determine causation based on "sufficient evidence". This idea is developed fully below in my discussion of the burden of proof and the application of the standard "sufficient evidence".

As I am sure the members of this Committee recall, the Congress of the United States engaged in a lengthy and often-times academic debate over the meaning of the term "rebuttable presumption" in 1969 as it was debating Federal Rule of Evidence 301. As noted, the view that a rebuttable presumption constitutes nothing more than the burden of going forward adheres to the Thayer-Widgmore theory. To meet the burden of going forward under the Thayer-Widgmore "bursting bubble" theory, a manufacturer need only produce reasonable proof to demonstrate that any one of the rebuttable presumptions created and enumerated under section 14 is not true. In general, once a manufacturer comes forward with reasonable proof demonstrating the falsehood of a presumed fact, the presumption ceases to operate. It evaporates. Or, as in Professor Thayer's simile, it bursts like a bubble and ceases to exist. In general, when the manufacturer satisfies his burden of going forward, the reasonable proof supporting his contention as to the facts concerning causation is matched by the reasonable proof of the initial showing put forward on behalf of the injured person.

If a manufacturer like Crud, Inc. failed to satisfy his burden of going forward, the presumed fact (that is, the fact established by the rebuttable presumption) would continue to remain in existence. The presumed fact combined with the reasonable proof submitted as a part of the initial showing would then comprise the case for Mr. Tinsdale, the claimant. Since nothing has been put forward by the manufacturer, Crud, Inc., its case would be comprised of no facts and no proof. In such a situation, who would win?

From the viewpoint of abstract legal theory as I interpret Professors Thayer and Widgmore, and as I argue section 14 should be intended by Congress, the answer must be: we don't know for sure. The issue is simply this. For the ABC to determine causation, causation must be demonstrated by sufficient evidence for the ABC to find that the claimant's injuries were caused by the toxic substance in question. Thus, according to theory, for the ABC to determine causation under section 14 it must conclude that the existence of the unrebutted, presumed facts of section 14(b) and the reasonable proof of the initial showing are in and of themselves sufficient evidence to demonstrate causation in this particular case.

As I explain in greater detail below in paragraph 4, the standard of sufficient evidence is different from the standard called a preponderance of the evidence. Yet, H.R. 9616, as intended, employs both standards in a unique relationship designed to encourage the production of detailed knowledge about toxic substance-related health problems and to permit reasoned decision-making to favor the conservation of human life. In order to achieve these goals by technical operation of law, as I hope I have clearly explained below in paragraph 4, it was necessary to draft section 14(c). Section 14(c) states that the manufacturer will carry the burden of proof. The burden of proof means the burden of persuading the ABC that the converse proposition to the presumed facts are more likely than not, in fact, true. Again, this proposition will be clarified below. But before turning to the meaning of section 14(c), burden of proof, four additional points must be made concerning the operation of rebuttable presumptions under section 14.

First, rebuttable presumptions 1, 2, and 3 have a different effect than rebuttable presumptions 4 and 5. Presumptions 1, 2, and 3 deal with the issue of liability. Presumptions 4 and 5 deal with the issue of damages. Thus, if a manufacturer is unable to satisfy the burden of going forward on presumptions 1, 2, or 3, in practice, the manufacturer probably will be liable for some amount of the total damages actually incurred by the victim. The actual amount of the manufacturer's liability may be mitigated by going forward with evidence on the issues raised by presumptions 4 or 5.

Second, if a manufacturer is held liable on the basis of presumed facts -- that is, if the manufacturer failed to meet his burden of going forward with evidence -- the toxic substance pollution disease that will be designated by the ABC under section 15 will reflect a nexus of symptoms, threshold levels, exposure periods, etc. (as relevant), as supported by only the claimant's evidence. Victims who apply for certification or who seek to employ the nexus provisions of section 14(d) will be governed by the claimant's particular facts (assuming the toxic substance pollution disease which is designated is a disease of first impression).

Third, because of the effect of the rebuttable presumptions, in most circumstances, most manufacturers will be encouraged to come forward with as much information about toxic substance pollution-related diseases as possible. Unlike the common law tort system which permits manufacturers to escape liability for technical reasons wholly unrelated to the issue of causation, (see, 14 Harvard Journal on Legislation 683, 703-06 (1977)), the operation of the rebuttable presumptions under section 14 places a premium on the development, retention, and submission to the ABC of facts related to toxic substance pollution and its effects on human health. Furthermore, section 14(b) stimulates the production of evidence on five different issues related to toxic substance pollution. The operation of section 14(b) makes it clear that satisfying the burden of going forward on any one of the five issues raised by the rebuttable presumptions destroys the presumed fact with respect to that one issue. Manufacturers will gather data on their own initiative for another reason. Besides using technical data such as health and safety studies to constitute reasonable proof necessary to satisfy the burden of going forward, a manufacturer can use additional health and safety studies to buttress his claim that his evidence is sufficient to prohibit the ABC from determining causation. Similarly, the claimant will attempt to secure as much detailed scientific knowledge of the causation of toxic substance pollution-related injuries in order to buttress his claim that his evidence is sufficient to permit the ABC to determine causation and designate a disease. After all of the evidence has been submitted to the ABC, of course, the evidence will be weighed by the ABC. By a preponderance of the evidence, the ABC must be persuaded that the manufacturer failed to prove his case.

Fourth, the manufacturer must meet his burden of going forward by the production of reasonable proof. Based on the foregoing, it should be clear that a manufacturer who indicates that, for example, "we just don't know the etiology of a disease which appears to be caused by toxic substance pollution XYZ" will not have submitted demonstrative or opinion evidence which tends to support in logic the converse of the presumed fact. Such a flat allegation should not be deemed to constitute "reasonable proof". A standard for reasonable proof, as applied to the initial showing, should be equally applicable to the rebuttable presumption. The preferred method of going forward with evidence sufficient to rebut the presumption would be for the manufacturer to submit "reasonable proof". For example, a manufacturer could come forward with a detailed health and safety study indicating that exposure to chemical substance XYZ yielded no ascertainable etiology. The epidemiological study may indicate avenues of further research. It is necessary for the health of the American people that the ABC ascertain as soon as it is practicable the areas in which scientific, technical, and medical research ought to proceed in order to best protect human health. We must not lose sight of the fact that sometimes a toxic substance will cause injury but we may be slow to ascertain the hazard. Sometimes our slowness will be compounded by defects in test protocols, statistical assumptions and clinical procedures. As public and private experts become more proficient in studying toxic substance-related disease, the greater the likelihood of using knowledge thus derived to prevent further human injuries. Reliance on the standard of "reasonable proof" to rebut the presumptions of section 14 will induce the production of greater learning on ways of preventing toxic substance-related injuries.

Rebuttable presumptions under section 14 are to be judged by a reasonable proof standard. Reasonable proof is not to be confused with a higher standard of judgment, sufficient evidence, which is reserved for actual causation determinations.

4. Burden of Proof - Burden of Persuasion

H.R. 9616 may require redrafting to clarify that in order for the ABC to determine causation, the ABC must find that sufficient evidence supporting the theory of causation exists. The burden of proof provision of section 14(c) shifts the technical burden of persuasion on each of five issues to the manufacturer. The intended meaning of this shift of the burden of persuasion in light of the provision for sufficiency of evidence can best be illustrated by use of a mathematical model. Let me state categorically that the mathematical illustrations contained in this letter are intended merely for heuristic purposes. In my opinion, the following mathematical hypotheticals should not become embedded in rigid statutory language.

This hypothetical is intended to illustrate the decision-making process which the bill requires of the ABC. The ABC faces a unique challenge in its decision-making process. After all of the evidence has been submitted to the ABC, no matter how thorough the evidence, the ABC is faced with three categorically distinct parcels of information. The first parcel consists of those facts which the claimant says are true. The second parcel consists of those facts which the manufacturer says are true. The third parcel consists of those facts and those beliefs which are as yet unascertained. In other words, this third parcel consists of a slight element of doubt which must necessarily exist in any case involving the causation of toxic substance pollution-related injuries. Unlike an auto accident, where there is little doubt that Mr. Jones' car hit Mr. Smith's car and that the impact resulted in Mr. Smith's injuries, toxic substance pollution cases, by their very nature, will contain some element of uncertainty.

Remember, when the ABC faces the process of determining causation, it must find the existence of sufficient evidence to support any final outcome ordered by the ABC. Furthermore, in the process of weighing the evidence, the ABC must balance parcel one, the evidence put forward by the claimant, against parcel two, the evidence put forward by the manufacturer, and weigh those two parcels according to the standard of "a preponderance of the evidence". For the time being, let us put parcel number three, the element of uncertainty, to one side.

I would like to present the following mathematical illustrations in three steps.

Step #1

Let us assume that we are dealing with three situations under the existing common law as it applies in cases of tort law. In each of these situations, the plaintiff carries the burden of persuasion. That means that the plaintiff must show by a preponderance of the evidence that his alleged case is correct. In all of the mathematical models discussed herein, let us assume that the judge may award points on the basis of what he believes to be true. Let us further assume that the judge has at his disposal 100 points. Finally, let us assume that 51 points signifies "a preponderance of the evidence". Under existing tort law, then, for the plaintiff to sustain his burden of proving his facts by a preponderance of the evidence, the plaintiff must attain a score of 51 or more when the judge awards points on the basis of believability. Thus, according to the tort law and the traditional operation of placing the burden of persuasion on the plaintiff, we can analyze the following three situations.

Situation A:

#1 - the plaintiff's evidence	51 points
#2 - the defendant's evidence	49 points
#3 - the element of uncertainty	0 points

Applying the given rules of the tort law to situation A, the plaintiff will always win. Remember, he need only prove his case by a preponderance of the evidence. Also remember, in the average tort case, the element of uncertainty does not play a recognized role.

Situation B:

#1 - the plaintiff's evidence	49 points
#2 - the defendant's evidence	51 points
#3 - the element of uncertainty	0 points

Given the applicable rules of the tort law system, in situation B, the defendant will always win. Technically, the defendant does not win because it is more likely than not he is correct. Instead, technically, the plaintiff loses because he failed to meet his burden of persuasion by amassing a preponderance of the evidence, that is 51 points.

Situation C:

#1 - the plaintiff's evidence	50 points
#2 - the defendant's evidence	50 points
#3 - the element of uncertainty	0 points

In situation C, where the evidence amassed by the plaintiff and by the defendant is equally believable, under the tort law system's rules, the defendant would win. The plaintiff would lose. As in situation B, the plaintiff would lose because he failed to prove his case by amassing a preponderance of the evidence.

Step #2

Assume that we make one change in the prevailing common law system as it applies to tort cases. Assume that we shift the burden of proof so that the burden of persuasion now rests on the defendant. With this change, the results in situations A, B, and C would be as follows:

Situation A: Plaintiff wins
Situation B: Defendant wins
Situation C: Plaintiff wins

In situation A, the plaintiff would win because the defendant failed to establish his case by a preponderance of the evidence. That is, with the shifted burden of proof, the defendant failed to amass 51 points, and hence, lost.

In situation B, the defendant would win because he did establish the believability of his case by a preponderance of the evidence. That is, he, indeed, did amass 51 points.

In situation C, the plaintiff would win for the technical reason that the defendant failed to establish his case by a preponderance of the evidence.

Hence, in the typical tort law case, a mere shifting of the burden of proof, that is, removing the burden of persuasion from the plaintiff and placing it on the defendant, would only result in a different outcome in situation C. In traditional tort law cases, shifting the burden of proof would be an important legislative action, but could hardly be deemed cataclysmic. A shift in the burden of proof would only affect the outcome of the case in those rare situations in which the weight of the plaintiff's evidence exactly equalled the weight of the defendant's evidence. In the traditional tort law case, it should not be overlooked, that there are excellent policy reasons explaining why the burden of proof is carried by the plaintiff. Medieval English common law judges and contemporary scholars point out that by requiring the plaintiff to prove up his case by that one additional point, that is by carrying the burden of persuasion, we discourage the filing of frivolous cases. From a political theory perspective, some commentators argue that the legal system does not possess the inherent right to restrict the activities of the individual (defendant) unless it could be shown that the ends of justice were more likely than not served by the intervention of the legal system. The underlying assumption for both of these rationales is that the plaintiff was in as good a position as the defendant to report to the court on the events that transpired. As this Committee knows, in modern times, the theory that the invisible hand of nature will protect the interests of society and the assumption that the plaintiff is always in a position to report the events that transpired have been called into serious disrepute. Pollution victims rarely are in a position equal to manufacturers when it comes to knowledge of the production and pollution processes that led to the injuries. Pollution victims aside, the tort law system has recognized that fairness and sound social policy dictate the need for a legal evolution of tort law beyond medieval English concepts. This Committee is fully aware of such modern doctrines as res ipsa loquitor, ultrahazardous activities, products liability, rebuttable presumptions and statutory shifts in the burden of proof.

Step #3.

Assume that we are now faced with a case of toxic substance pollution. Instead of applying the traditional rules of tort law decision-making, we will see that we must apply what I will call toxic substance pollution decision-making. For, it is essential to recognize that in all cases of toxic substance pollution an element of uncertainty will be present. The issue then is, from a policy perspective, how should Congress view the presence of uncertainty in every single case of toxic substance pollution? Furthermore, from a policy perspective, Congress must decide what is a fair result for the victims, the manufacturers, and most importantly, for the continued health and safety of the American people and of future generations. I take the position that the traditional tort law decision-making mechanism is an inadequate mechanism for adjudicating fairness to the parties involved and for determining the presence of scientific-medical-legal causation and truth in order to protect human health. Let me demonstrate how I reach this conclusion.

Situation D:

#1 - the plaintiff's evidence	50 points
#2 - the defendant's evidence	49 points
#3 - the element of uncertainty	1 point

In situation D, if we were to apply the prevailing tort law decision-making procedure, the plaintiff would not recover. The defendant would not be held liable for causing injury. To repeat, under the prevailing tort law standard, since the plaintiff must establish his case by a preponderance of the evidence (51 points), the plaintiff has failed to meet the applicable standard. But let us stop for a second. We are now discussing a case of toxic substance pollution. The nature of the injuries we are discussing may include teratagenesis, mutagenesis, complete mental and physical dysfunction, indeed, the seeds of destruction of future generations. From a policy point of view, and from the perspective of protecting human health, is this the result that Congress wants?

Situation E:

#1 - the plaintiff's evidence	49 points
#2 - the defendant's evidence	50 points
#3 - the element of uncertainty	1 point

Assume now, for purposes of situation E, that by statute the legislature has required that the defendant in toxic substance pollution cases carry the burden of persuasion. That is, in order for the defendant to prevail, the defendant must amass 51 points. In situation E, since the defendant failed to amass 51 points, the defendant will lose. The plaintiff will win. For policy reasons, and from the perspective of protecting human health, this may be deemed to be the equitable result. I suspect that few persons who fully understood the enormity of the toxic substance pollution problem facing humankind would find this result inequitable. Unfortunately, the omnipresence of the element of uncertainty in toxic substance pollution cases renders this simple technical change in traditional tort law decision-making absurd, as illustrated in situation F.

Situation F:

#1 - the plaintiff's evidence	1 point
#2 - the defendant's evidence	50 points
#3 - the element of uncertainty	49 points

Assume that we were before a court applying traditional rules of tort law. Assume further that, by statute, the burden of proof was carried by the manufacturer who was responsible for the toxic substance pollution in question. Applying traditional principles of weighing the evidence and determining the outcome, the plaintiff would win. Stated so as to be technically correct, the defendant has failed to meet his burden of persuasion. That is, the defendant has failed to amass 51 points. Hence, by merely shifting the burden of proof and doing nothing more, a common law court applying traditional rules of tort law, as modified by a statutory shift in the burden of proof, could force the closing of a business, the termination of jobs, and the massive disruption of the economy, despite the fact that only one point of credible evidence had been introduced to support the plaintiff's allegation. Since the Congress must value the nation's economic health as well as human beings' medical health, this result would be folly.

I believe that the only way to legally resolve this dilemma is to remove the adjudication of most toxic substance pollution cases from the courts. It is the intent of section 14 to establish a new decision-making standard in cases of toxic substance pollution. The standard appropriate for toxic substance pollution decision-making consists of two aspects. The first aspect is *sufficient evidence*. This standard means that the evidence presented to the ABC substantially indicates the likelihood that human injury has occurred as a direct result of the toxic substance pollution in question. This test of sufficiency of the evidence, however, must be applied to every step along the causal chain. For purposes of our mathematical illustration, let us assume that evidence will be deemed sufficient when it has attained a score of 44 points. The second standard to be applied by the ABC under section 14 is the *preponderance of the evidence* standard, as refined by a shift in the burden of persuasion under section 14(c), so that the defendant carries this burden of persuasion. To illustrate the way in which the ABC may consistently apply these two standards simultaneously and yet achieve what I believe to be practical policy results, from both an economic and a health viewpoint, let us explore the following situations.

Situation G:

#1 - the plaintiff's evidence	25 points
#2 - the defendant's evidence	51 points
#3 - the element of uncertainty	24 points

Assume that the ABC is presented with a toxic substance pollution case in which the credibility of the evidence put forward by the plaintiff attains 25 points. We assign 24 points to the element of uncertainty. In this situation, the defendant would prevail. The reason for this result must be stated in two parts. First and foremost, the defendant prevails because he carried the burden of persuasion by amassing 51 points. Second, the defendant prevails because the plaintiff failed to amass 44 points. That is, the plaintiff failed to establish that whatever evidence the plaintiff introduced constituted sufficient evidence. In this situation, this must be the result.

Situation H:

#1 - the plaintiff's evidence	45 points
#2 - the defendant's evidence	50 points
#3 - the element of uncertainty	5 points

Applying the two-step standard of sufficiency of evidence and preponderance of the evidence to situation H, we conclude that the plaintiff prevails. In this situation, we may explain this result for two reasons. First and foremost, the manufacturer failed to sustain his burden of persuasion by a preponderance of the evidence. The defendant failed to amass 51 points. Second, the plaintiff did indeed present sufficient evidence (more than 44 points) to lead the ABC to conclude that the risk to human health was great.

Situation I:

#1 - the plaintiff's evidence	44 points
#2 - the defendant's evidence	51 points
#3 - the element of uncertainty	5 points

Applying the two-step standard of sufficiency of evidence and preponderance of the evidence as modified by the shifted burden of proof, it would appear that a dilemma exists in situation I. Such is not the case. Since the defendant has demonstrated the truthfulness of his evidence by a preponderance of the evidence, the defendant must win. It may be recalled that this would have been the identical result under any tort law model. It is, of course, to be noted that the plaintiff has presented sufficient evidence to demonstrate the causal connection between the manufacturer's activities and the resultant injury. However, were the result to be different in this particular case, the meaning of the preponderance of the evidence standard would be destroyed. Remember, the decision-making model of section 14 is not intended to produce "truth" as if by magic. It is not intended to be any more of a departure from tort law principles than may be necessary. Situation I invites the plaintiffs to produce additional evidence or to demonstrate the fallacies of the defendant's test protocols, statistical analyses, underlying assumptions or the like. In practical terms the actual occurrence of situation I may be extremtly rare. Beyond the simple resolution of dispute between the parties, however, situation I suggests the presentation of evidence indicative of a rife debate between two schools of technical or medical thought. The benefits of engaging in this debate before the ABC are two-fold. First, the ABC will be able to bring the expertise of its own membership to the decision-making process. Second, the mere activity of debating such a hotly contested scientific issue affecting public health will expedite the investigation and research efforts.

Let me repeat that situation I is more a theoretical possibility than an anticipated practical occurrence.

Finally, it should be noted that in practice a situation such as situation I would most likely lead to some form of direct regulation of the hazard to human health under existing authority granted EPA in the Toxic Substances Control Act. If there is sufficient evidence produced in argument before the ABC suggesting the causal connection between an act of toxic substance pollution and an injury, the Administrator of EPA would be involved with the direct regulation of the pollution process under either the standard of "unreasonable risk" or "imminent hazard". Thus, even though a particular plaintiff may be barred from recovery because the manufacturer-defendant sustained his burden of persuasion, H.R. 9616 would not be, in effect, granting a license to the manufacturer to continue the hazardous or risk-producing practice. H.R. 9616 was intentionally designed to interface with the existing regulatory apparatus and capabilities of the executive branch.

Situation J:

#1 - the plaintiff's evidence	25 points
#2 - the defendant's evidence	50 points
#3 - the element of uncertainty	25 points

In many ways, this is the most important situation for us to analyze. Let us first analyze this situation from the traditional tort law perspective: the plaintiff's case would fail. The plaintiff did not establish his case by a preponderance of the evidence. Indeed, he only amassed 25 points when he needed 51. As a result, under the traditional tort law decision-making model, the defendant would win. As a result of the defendant's winning this case, the plaintiff would be denied subsequent relief for reasons of res judicata, even if new evidence, such as a new epidemological study, were to be produced. In other words, once the plaintiff made his case, he would have to live with it. Unfortunately, he may also have to die with his stale data base.

For purposes of comparison, assume that we are now applying the traditional tort law principles of decision-making and adjudication, with the addition of a statutorilly required shift in the burden of proof. In other words, assume that we are before a common law court, but that the defendant carries the burden of persuasion. In a common law court under these circumstances, the result in situation J would be identical to the result in situation F discussed above: the plaintiff would win because the defendant failed to meet his burden of persuasion by a preponderance of the evidence (51 points).

It is most important to compare these two possible tort law results with the result which would occur under the decision-making system of H.R. 9616. Applying the two-step decision-making analysis of section 14, we proceed through the following analysis. First, the defendant has failed to establish his case with a preponderance of the evidence. Hence, the defendant may lose the case, if the plaintiff comes forward with sufficient evidence. Looking to the evidence put forward by the plaintiff, we see that it is insufficient. (The plaintiff has only established 25 points of credibility, not the requisite 44.) According to this two-step analysis, the defendant does not win. Also, the plaintiff does not win. This result is absolutely correct. Situation J simply means that the ABC has not had presented before it sufficient evidence for it to make a determination of causation. The injured party would continue to be a claimant under the provisions of section 13. As new evidence was made available to the plaintiff, the plaintiff would be entitled to bring that information forward. Similarly, as the defendant produced new information affecting the causation determination, the defendant would be entitled to produce that evidence before the ABC. In other words, situation J would result in no one winning, but would create the greatest impetus conceivable for both parties to generate new knowledge about the nature of toxic substance polluted-related injuries. From a policy perspective, this ought to be precisely the result Congress should seek.

Since the causation determination before the ABC is a statutorilly designed procedure authorized, designed, and established by the Congress, the Congress may build into its decision-making system the capability of doing something which no common law court can do. Common law courts must decide cases. The assumption in a common law court is that the element of uncertainty will somehow disappear through the adversarial process. In most all tort cases, this is conceivably true. In toxic substance pollution-related cases, it is the most absurd of legal fictions. In my opinion, the tort law system must necessarily be abused in cases of toxic substance pollution. Defendants whose pollution causes injuries may avoid full disclosure of scientific data by settling out of court. Defendants whose pollution causes injuries may escape liability because of skillful trial tactics. Such a result may be just in that particular case, but what effect does it have on the health of the American people to forsake greater knowledge of the risks posed to human health in order to maintain tidy operation of the tort system? At the same time, I believe that the common law tort system encourages factors such as sympathy for the victim to induce judges and juries who are excellent determiners of law and fact in most instances, to fill in the gaps in a technical causal chain. Do not misunderstand why I raise this point. Providing relief to injured persons is, of course, a valid goal of the tort law system. And, I would strongly agree with the proposition that the decision-making process of the jury should not be held to "higher" levels of scrutiny or analysis, except in case of misfeasance. But, I am faced with a conundrum. I believe that the society at large must know what risks, injuries and diseases are caused in fact by toxic substance pollution. I believe that tort law decision-making does not always focus on that issue. I believe that direct regulation is but a limited tool in securing information that may be ascertainable, but which may exist only on the fringes of scientific inquiry. Yet, the ascertainment of that knowledge on the fringes of scientific inquiry must be pursued with supreme diligence and thoroughness in the interests of both the parties involved and the continued survival of humankind. Thus, section 14 is not designed to reduce the instances in which injured persons would be entitled to recovery. It is, however, designed to operate as a potent information-forcing and information-analyzing decision-making process.

The policy question facing Congress is how do we deal with the potential devastation of human health and the subsequent destruction of future generations given the uncertainty which necessarily exists in all toxic substance pollution-related injury cases?

II. Exclusivity of Remedy

During the hearings in March, I recall an issue arising concerning multiple recoveries by victims. Since I have been frequently asked about the issue of exclusivity of remedy, I suspect that this issue needs further attention.

In drafting this bill, it was my intention to adhere to the following principles. First, a plaintiff ought to be entitled to select the forum in which he will initially bring his case. Hence, it is the intent of H.R. 9616 to permit plaintiffs initially to choose other available compensation methods, including traditional tort law. Second, after initiating proceedings, plaintiffs should not be allowed to forum-shop. Therefore, once a proceeding has begun in whatever forum initially selected by the plaintiff, the plaintiff should not be allowed to remove his cause of action from, for example, the ABC to the courts. Third, the administrative compensation system of H.R. 9616 should be designed so as to prohibit double recoveries. Thus, if an injured person receives recovery under the provisions of H.R. 9616, that remedy which the victim has received should be his complete and sole remedy. Court determinations of toxic substance pollution cases will be res judicata before the ABC. Similarly, final administrative determinations issued by the ABC will be res judicata before the common law courts, except as provided for in section 30, concerning judicial review of final administrative acts.

Since it is the intent of H.R. 9616 to provide full compensation to victims of toxic substance pollution, the aforementioned principles on exclusivity of remedy seem to me to be fair to all parties who would appear before the ABC.

III. Gross Negligence

Section 9(b) provides that a person who intentionally causes or attempts to cause injury to himself or another person by means of using toxic substance pollution shall be prohibited from recovery under this Act. During the hearings, I was questioned on the issue of extending this prohibition to cover acts of gross negligence.

After long reflection, I would like at this time to reiterate my testimony of March 7, 1978. I believe that it would be improper to exclude victims from recovery on the grounds that they engaged in acts of gross negligence or recklessness. I fully accept the common law assumption that most persons in our society conduct their affairs with a reasonable amount of ordinary care. For those persons who frequently deal with toxic substances, it is imperative that those in positions of responsibility provide workers and employees with complete and up-to-date information about the risks involved with toxic substances in the workplace. After having been placed on notice as to the likely risks involved in handling toxic substances, I believe it is unlikely that reasonable people would conduct themselves in a manner which could properly be deemed wanton or reckless. Of course, there may be exceptions to the rule. But, I believe the number of cases of gross negligence are likely to be small.

Were this Committee to extend section 9(b) to prohibit recovery in cases of gross negligence by the victim, in my opinion, this Committee would be establishing a smokescreen behind which unscrupulous manufacturers would be able to hide. For policy reasons discussed in section I of this letter, I believe that the Congress should focus the issues in toxic substance pollution-related cases on the essential elements of causation.

Indeed, whether a particular victim engaged in an act of recklessness may have no bearing on the medical impact which the toxic substance may produce on other persons. This point may be obvious, but let me illustrate its importance. Assume that worker X engages in an act of gross negligence which results in a severe skin disorder caused by toxic substance pollution. Further assume that the only way in which worker X could establish the etiology of his injury so as to satisfy the test of sufficient evidence would be to produce a new medical or toxicological study on the nature of skin disorders caused by the toxic substance in question. Since one of the primary goals of this system must be seen as information-forcing, I believe it is essential that such data be submitted to the ABC as early as possible. The argument that exposure occurred only as a result of gross negligence is irrelevant. Policy concerns ought to place a premium on data generation in the interests of public health. Consider the following possibilities. The data submitted by worker X establishing the etiology of his skin disease may provide researchers with a critical link in evaluating a larger epidemiological study elsewhere in the country. Furthermore, it is possible that the ABC may have left several cases of toxic substance pollution-related injury undecided, pending the development of subsequent medical or scientific data. We may think worker X unworthy of recovery. Yet, from a systemic point of view, it is far better to permit those few persons who may be injured as a result of gross negligence to be compensated in order that the ABC receive as much scientific, technical, and medical data possible on the nature and cause of toxic substance pollution. Fairness for those injured persons who are awaiting final administrative determinations of the ABC stemming from independently submitted instances of toxic substance pollution dictates that this result be so.

IV. Features of Toxic Substance Pollution Which Suggest the Need for a New Statutory Remedy

During the hearings, the question was raised as to why we need a special compensation system in cases of toxic substance pollution when such a system is not being proposed for victims of auto accidents, victims of blasting, or victims of oil drilling operations.

First, I believe that the inherent nature of toxic substance pollution-related injuries is quantitatively different from the nature of auto accident-related injuries. It is true that there are risks involved on our nation's highways. It is true that there are ways of reducing the risk of injury from auto accidents. But, it is also true that we know something essential about the nature of automobile injuries which we do not know about the nature of toxic substance pollution-related injuries. In the case of automobiles, it is reasonable to conclude that if automobile manufacturers continue to manufacture automobiles at current levels of safety, and if Americans continue to drive the same number of miles as in recent years, and if road safety and traffic patterns continue at approximately their current levels, it is safe to conclude that approximately 55,000 Americans will lose their lives on the nation's highways within the next 12 months. I believe, Mr. Chairman, that there is no one in this country who can predict the number or the nature of injuries to current or future generations that is being caused daily, by the current level of discharge of toxic substance pollutants in the United States.

Second, I believe that the nature of toxic substance pollution-related injuries presents legal issues inherently different from cases of products liability, ultrahazardous activities, or the routine tort law. In the case of blasting, an ultrahazardous activity, a defendant may be held strictly

Mr. GORE. Thank you very much. This has been an interesting and important panel. Your original bill helped to start a lot of this debate and played a very constructive role in that respect. Let me ask a few brief questions. I know the hour is late, and I know that we have kept you all too long as it is. Sixty percent of all occupational disease cases are contested by employees when claims are filed within the worker's compensation system. Yet only 10 percent of the job injury cases are contested. When a case is contested, the worker assumes the burden of proving the work-relatedness. In occupational disease cases, do you think this shift of the burden of proof should be eliminated?

Mr. BAILEY. I think that the statistics that have been cited at numerous seminars by labor about the numbers of people who actually end up collecting under the present worker's compensation system because of the opportunity to contest, because of the opportunity to require hearings and the hiring of attorneys to conduct proceedings, are startling. I was not aware of them until I learned of them of late. This then raises the question, Mr. Chairman, of whether there should be certain kinds of presumptions which would eliminate a great many of the debated issues in determining whether or not somebody is entitled to compensation. As soon as you start talking about passing up elements of the system by presuming conditions to exist, you run headlong into the whole debate about black lung and what caused that question to run into problems. I do not know of any system at the present time where most of the actors—meaning those who are going to have to pay for the awards in the long run, my own industry; the companies we represent, who are going to pay the premiums that will absorb that cost; or labor—are satisfied that will eliminate the particular problem you addressed, and that is that we are literally carrying on a mini torts system within the workers' compensation system. When they recognized that fact, that they had to have lawyers and debates and mini trials at the workers' compensation board, the plaintiff said, "To heck with your workers' compensation system. I am going to court where I can get a much bigger number on the other end." I do not know of any method by which we can, other than agree on certain kinds of presumptions. Now, Dr. Selikoff says, specifically in asbestos cases, that he can draw up medical criteria which absolutely would satisfy any doctor anywhere and any insurance company representative that this is a compensable case. When you talk about presumptions in the case of asbestos, clearly asbestosis is asbestos-related. So we would not have to reinvent the wheel for an asbestosis claim that it was asbestos-related. Clearly, mesothelioma is asbestos-related. Now, we hear from Turkey that there may be some causes of mesothelioma not asbestos-related, but in the United States we have not found any yet. There are two kinds of rebuttable presumptions that the professor was talking about earlier that might be used. Bronchogenic carcinoma is an entirely different case. You could not set up a system where you could have a lot of issues eliminated in the bronchogenic cases. But in the other two, clearly you could. Your problem would be long term latent injury from a chemical or from hazardous wastes or from PBB in Michigan. There you would have the same problem we are wrestling with today. None of the parties want to give up something in order to gain something, because the money is too big in the game we are playing today.

Mr. **Gore**. Does anybody else want to comment on that?

Mr. **Soble**. With respect to the rebuttable presumptions that Mr. Bailey was just talking about, at some point in the past, let us say 10 years ago, science was not developed to the point where we could have established a rebuttable presumption with respect to mesothelioma or with respect to asbestosis. But after the *Borel* case and after several of the other leading asbestosis cases, and after some technical breakthroughs on the clinicians' side in handling asbestosis cases in particular, we are now able to define clearly compensable areas. In fact, the way the tort law system is operating today, that is happening. When plaintiffs' lawyers and defense lawyers get together, a plaintiff's lawyer will sit down and say, "I have a pleural plaque of this magnitude. I have this evidence. This is what the charts say. This is clearly worth $75,000." Or he might say, "This is worth $150,000." They just hammer out a number, and those cases never get to court.

One fact that I would like to make sure is not overlooked today is that the tort system has broken down in large part because cases do not get to court. Cases are not adjudicated. The issue of causation is hardly ever ruled on in an American court. Instead, what happens is that plaintiffs' lawyers and defense lawyer figure out among themselves what the clearly compensable areas ought to be. They attach a dollar figure to the evidence in the case, which they can sell to each of their clients, and they reach an out-of-court settlement.

Mr. **Gore**. Did you want to comment?

Mr. **Wodka**. No, I think enough has been said on that.

Mr. **Gore**. Many States restrict cases to those meeting minimum time and recency-of-exposure rules. This is in spite of the fact that little is known about the relationship between intensity and duration of exposure and adverse health effects. What rule would you impose if you had to change the statute of limitations?

Mr. **Wodka**. This effort is going on in New York State right now, which has, of all the States, probably the most restrictive statute of limitation rule. I believe it is 2 years after last exposure, and as we discussed here it is a latent disease. Most victims are cut out of the picture there. In New York State an effort is going on to make it so that the statute would expire 2 years after disability began, which would allow those claims that are legitimate or where trouble has already started and the person is disabled and cannot work, would be the time when his statute would begin. We think that would be a very equitable system, and you would not have to worry about your worker who has a pleural plaque but, as Mr. Bailey says, swims a mile a day. That person is not disabled.

Mr. **Bailey**. There is a very practical answer developing to that question, because we are out there slugging away at each other every single day, Mr. Chairman. We have to come up with some practical solutions, even though committee sessions like this are so terribly important to encourage us that something is going to solve this problem. But on behalf of one of our insureds, we have offered to make a deal, and the deal is: If you drop those cases where the guy is playing golf or swimming 2 miles a day and has some X-ray evidence of impairment, but bring me your disability cases where there is an economic disruption in the life of the family of that person, I will agree that we will settle a lot of those cases and get out of the courtroom with them. We are talking of hundreds, if not thousands, of cases where we will waive the statute. Just forget about it. We will take our chances that either the system will change or the man will not get sick. I have received tremendous encouragement from the asbestos manufacturers, watching Unarco, looking at JM's financial statement, and saying: "Wait a minute. Think of what we might save the system and ourselves if we agree to waive that statute." If we do it and it works, it begins to give the Congress a practical basis for saying, if this works so well by agreement between the parties, what is wrong with devising a system to codify it. That would be my suggestion.

Mr. Gore. Let me pursue this just briefly. What about the man who is swimming a mile a day?

Mr. Bailey. Under the law, he has to start a lawsuit soon.

Mr. Gore. He would be locked out under this deal, is that right?

Mr. Bailey. No. The statute is waived. He has the benefit; he does not have to come and make a claim against any system until he has disability. But as long as he has mere X-ray evidence of change, clinical and substantive change, I will waive the statute if you will bring me your sick only who really have a legitimate disruption.

Mr. Gore. Did they take you up on it?

Mr. Bailey. We are very close.

Mr. Gore. You are still in negotiations.

Mr. Bailey. I have the parties to agree. Now I have to get a mechanism where we can draw it up and agree to it. But I think we are going to provide you with a practical solution which, in the long run, when the parties can do this, will give a much better basis for a solution than to try to invent one.

Mr. Wodka. I am not a lawyer, but I have been studying this area. There is some adaptability also in the developing law. There recently was a case decided here in the District of Columbia, in the U.S. Court of Appeals, called *Wilson* v. *Johns-Manville.* This was a worker here in the District who had developed mild asbestosis in about 1973 or so, filed for worker's compensation, did not take any third-party action, and a few years later, I think around 1977 or 1978, he died of mesothelioma. Then his widow started an action. Johns-Manville and the other manufacturer said, no, he should have started his statute running when he was diagnosed back in 1973 and he started his worker's compensation claim. The D.C. circuit ruled that these were severable actions, that he had a claim in 1973 and he also had a claim in 1978. If the other circuits adopt this, it would mean that the worker could wait until he develops a more serious kind of condition.

Mr. Soble. Mr. Chairman, I would like to comment on Mr. Bailey's practical solution. The practical solution works very well with respect to the individual claimants and the parties in the lawsuit. It does not work so well for the society at large and for the issue of public health, for this reason. We need to know, as soon as possible, who all of the potential claimants are going to be. We need to get those claimants into the system. We need to get them to file their claims, their suit, plus the medical data supporting their suit, and then let us put them on hold. Let us say, You do not have to proceed with your suit.

Mr. **Gore**. Why do you need to do that?

Mr. **Soble**. Assuming this were not an asbestos case. Let us assume we had a different toxic substance, where the scientists were still trying to figure out exactly what the causal mechanisms were. In that event, we would close down the data base for scientific evaluation if we told people from the time that they have an abnormal symptom up to the time that they have a recoverable injury that they should not be coming through the adjudicatory system, then we are closing down that data base for scientific evaluation.

Mr. **Gore**. You could do that with a registry.

Mr. **Soble**. You could. You could do it with a court filing, too. Wherever it is that you need to bring this person into the system, you just need to bring them into the system. That is my point.

Mr. **Bailey**. I think if Dr. Selikoff were here, because he has expressed his views so often to myself and others, he would say that he would opt not in favor of requiring a person to get into a legal system in order to be identified. He would expect that any remedy that is worked out by agreement between the parties or by legislation includes surveillance. I think that sort of came out in what he said about the PBB case, that if he had the resources he would insist that everybody in Michigan who felt he had any symptom be permitted by somebody else's resources to go in annually for surveillance and update.

Mr. **Gore**. Is the man who is swimming a mile a day in your proposed agreement?

Mr. **Bailey**. He was at a surveillance program his union was running. Irving's Mount Sinai team took 250 workers per day for a 3-day weekend.

Mr. **Gore**; I am talking about the case you described to us. Does that satisfy you, Mr. Soble?

Mr. **Soble**. No; not at all. It is only going to work with asbestos cases. Now we know to worry about asbestos as a toxic substance causing a variety of problems. What about other toxicants?

Mr. **Gore**. But any time you get parties this far along, you are going to know that there is cause for surveillance or monitoring.

Mr. **Soble**. That is right, but what about when you do not get the parties this far along? What about chemical X, Y, or Z that today is being manufactured half a mile down the road. Assume we have 14 workers who are complaining of wheeziness, phlegm, or dizziness and do not really know what is wrong, We need to know what their symptoms are. We need to start cataloging what they have been exposed to, whether they are filing a claim or not.

Mr. **Wodka**. In 1969 and 1970, with the passage of OSHA, that is what OSHA was supposed to address. Incredibly for asbestos, once a worker's asbestos exposure stops, and most exposures stopped in the early 1970's, that worker is not entitled to another medical examination under the OSHA standard. I think the Congress ought to direct some of its attention to the laxity of the regulatory agencies to fulfill the law that was passed here.

Mr. **Gore**. We have done a little of that.

Mr. **Bailey**. I do not think we are debating the idea of the data base or its value. I think we are debating the mechanism, and I simply say I do not think you ought to go to court to develop data.

Mr. **Soble**. I am not insisting on the courts, sir. We do not disagree.

Mr. **Gore**. Could we ask you all to respond to some additional brief questions in writing?

Mr. **Bailey**. We would be delighted.

Mr. **Wodka**. Sure.

Mr. **Soble**. Yes.

Mr. **Gore**. Let me close by thanking this panel, all three of you, for your excellent testimony and for your responses to our questions. Your appearance here has been very helpful. This is a difficult subject, and we have not heard the last of it by a long shot. How we are going to solve this problem, I do not know. But we have to wade in and try to wrestle with these issues and come up with some solutions, because it is not going to go away at all. Thank you for helping us. And let me extend thanks to all of today's witnesses. With that, we will stand adjourned.

[Whereupon, at 4:35 p.m., the subcommittee recessed, to reconvene at the call of the Chair.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

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August 23, 1982

FILE NO.

DIRECT DIAL NO. 804 788-8365

Superfund Study Report

Dear Mr. Gore:

Over the past year, I was a member of the Superfund § 301(e) Study Group, which prepared a Report to Congress, mandated by P.L. 96-510, entitled "Injuries and Damages from Hazardous Wastes--Analysis and Improvement of Legal Remedies."

I understand that Mr. Frank P. Grad, Reporter for the Group, testified before your subcommittee on August 12, 1982, attaching as an inclusion to his statement a 90-page excerpt from the Report on "Recommended Remedial Approaches--Federal and State."

Standing alone, however, Chapter IV does not properly reflect the strong division of opinion within the Commission on several key issues. This part of the Report must also be viewed in light of the comments and reservations expressed in the individual members' comments, which are also a part of the overall Report. Therefore, I respectfully request that this letter and its enclosed copies of those individual views be made part of your subcommittee's hearing record for the August 12, 1982, session at which Professor Grad testified.

Sincerely yours,

George Freeman

George C. Freeman, Jr.

20/765
Enclosures

The Honorable Albert Gore, Jr.
Chairman
Subcommittee on Investigations and
  Oversight
Committee on Science and Technology
819 House Office Building, Annex I
Washington, D.C. 20515

cc: Subcommittee members -

The Honorable Robert S. Walker
The Honorable Bob Shamansky
The Honorable Harold L. Volkmer
The Honorable Manuel Lujan, Jr.

Superfund § 301(e) Study Group members -

Professor Frederick R. Anderson
The Honorable Charles D. Breitel
Weyman I. Lundquist, Esq.
Professor Jeffrey O'Connell
The Honorable Warren Spannaus
Professor Frank P. Grad
The Honorable James R. Zazzali

"COMMENTS ON THE REPORT"
SECTION OF SUPERFUND 301(e) FINAL REPORT

Joint Statement of Messrs. Anderson, Breitel, Freeman and O'Connell

Statement of Frederick R. Anderson

Comments of Charles D. Breitel, Study Group Member

Comments of George Clemon Freeman, Jr.

Final Comments of Weyman I. Lundquist, Study Group Member

Comments of Jeffrey O'Connell, Study Group Member

Comments of Warren Spannaus

JOINT STATEMENT OF
MESSRS. ANDERSON, BREITEL, FREEMAN, AND O'CONNELL

A fundamental weakness in the Report is in the relationship between the Tier One and Tier Two remedies. For understandable reasons of trying to accommodate sharply differing opinions, a clear choice could not be made between the limited, administrative remedy in Tier One and the plenary remedy on Tier Two. It is our opinion (1) that Tier One should be the primary source of compensation for most claims and losses, (2) that Tier Two be available only for exceptional cases, and (3) that ordinarily an election must be made between pursuing a claim on Tier One or Tier Two.

We would prefer a system providing discretionary judicial approval before a claimant may bring a plenary action at the Tier Two level, if he had previously elected to pursue the more limited administrative remedy at Tier One. But before such an election should be imposed, the ideal of using the administrative procedure for the anticipated mass of smaller claims should provide larger benefits than those described in the Report. Not only should the claimant be entitled at the administrative level to recover the economic losses as limited and the medical expenses incurred, but he should also receive, subject to an aggregate upper limit an award for the psychological, social, and related injuries sustained by him geared to tangible events objectively identified as physical and neurological consequences of the physical injuries. These may be classified in schedules or categories with variable fixed upper limits, the precise award to be determined by the administrative agency.

The election to obtain the enhanced administrative award should be binding, unless the claimant can satisfy a court on application that he should be permitted to pursue a plenary action because of a bona fide unanticipated cause of action for damages, available under general tort standards, beyond those recovered by him at the administrative level. In addition to pursuit on Tier One of smaller claims and those when claimant did not anticipate a valid Tier Two remedy, the limitation on pursuit of both Tier One and Tier Two remedies is intended to apply to those with larger claims who wish to pursue the prompter, more limited remedy in Tier One as opposed to the riskier, if more generous remedy on Tier Two. Such an election avoidance procedure should provide a set of standards to be satisfied before the application to pursue Tier Two be granted. The standards should embrace: genuine and reasonable mistakes as to the extent of injury or its consequences; lack of opportunity or availability of legal or other advice sufficient to alert the claimant to the consequences of electing to pursue the administrative remedy; new evidence or advances in medical knowledge to indicate the seriousness of likely consequences of the injuries sustained; the absence of motive to have used the administrative remedy principally as a preliminary to bringing a plenary action; the merits of the proposed plenary action; and such other factors as would make substantially unjust or unconscionable the denial of a further remedy to the claimant by way of plenary action. The object of the system would be to utilize, as intended, the administrative remedy to handle claimants who cannot economically or practically pursue plenary actions (as well as those with larger claims mentioned above preferring the administrative remedy), and to reserve the plenary action for the fewer larger and exceptional claims where such actions are more economically feasible.

The foregoing are merely suggestive of the type of procedure contemplated in order to promote serious consideration of an elective procedure which should not be manipulatable permitting abuse of the administrative remedy and the multiplication of procedures rather than a simplification of available remedies. At the same time the administrative remedy should encourage its use by not eliminating many components of damage, while provable objectively, but yet going beyond the loss of income and medical expenses.

Statement of Frederick R. Anderson

The late Kermit Gordon introduced me to Academica Microcosmographica, a slim tome by the Cambridge classicist, H.M. Cornford. Gordon pointed out that Cornford may have actually succeeded in discovering all the essential parliamentary techniques for ensuring that legislative bodies never agree to take action. For some reason, Gordon thought that this book was essential to my understanding of life in Washington.

One of the ways which Cornford identifies for ensuring that a deliberative body does not adopt a proposal is to field numerous alternatives to the proposal for comparison and debate, which then hopefully will be endless, producing deadlock. By entering additional remarks alongside those of my fellow panel members, however, it is not my intention to help deflect Congress from taking effective action. I have endorsed the majority's proposal, and I believe it points the way to a far better system than the unaided common law provides today to victims of harms from hazardous substances.

But I also believe that Congress could adopt a stronger, more effective measure than the compromise embodied in our report. By this comment and the statement which I co-signed with my colleagues Breitel, Freeman, and O'Connell, I try to indicate where the path to a better compensation scheme lies. Whatever form a final bill may take, the important point is that action is needed, for the reasons of compassion, risk minimization, cost internalization, and law reform touched upon in the body of our main report. The diversity of opinion among panel members should serve to help Congress fashion a better final compensation plan; it should not become an excuse for inaction.

The primary shortcoming of the panel report lies in our failure to make the difficult, even painful, choice early in our discussions between recommending that compensation occur primarily through liberalized statutory common law actions in which judges hear virtually all cases, or recommending that a new administrative system be created as the near-exclusive means of compensating victims. The failure to make this hard choice has resulted in a proposal which, despite the great appeal of Tier I standing alone, is unnecessarily duplicative, inefficacious, and inequitable. To compromise differences arising between a few panel members who strongly preferred that no statutory intervention at all occur to hasten the evolution of existing remedies at common law, and other panelists who favored one statutory scheme or another because they believed that existing common law remedies were inadequate, we designed a plan that tried to please both. In so doing we did what attorneys do very well -- we created new legal remedies to be coupled to those already in existence. Designing new procedures is the policy-minded lawyer's stock-in-trade. But at some point managing conflict by generating procedures becomes the jurisprudential equivalent of the treasury's printing new money, with analogous results. I believe we may have reached that point.

Almost no one favored concentrating our efforts solely on statutory reform of the common law, perhaps through a federal or state statutory cause of action that would authorize judges and parties to utilize the innovations incorporated in the Tier I administrative recovery contemplated by the panel's proposal -- (new presumptions, a shift in the burden of proof, presumption documents, joint and several liability). I regret that this path was not taken, although I note that in his separate comments Judge Breitel reminds us of our neglect of the Tier II remedy, which he states is in "dire need of legislative relief" (II,6). In 1978, in testimony before the Subcommittee on Consumer Protection and Finance of the House Committee on Interstate and Foreign Commerce (Serial No. 95-150, 95th Congress, 2nd Sess. 348), I suggested a liberal federal cause of action for injury from hazardous substances, checked somewhat by administrative certification via a new type of criteria document. The criteria document would discuss substances and families of substances and would certify that their disease-causing characteristics merit generous statutory presumptions and burden shifts which the court would apply in finding the facts and determining awards. (This concept resembles the "presumption document" found in the Tier I remedy).

With the current aversion to creating large new bureaucracies resembling those which administer the worker's compensation or HHS programs, I thought that leaving the matter for further experimentation by the courts, with some statutory help on the causal problem, would appeal to legislators. The arguments against this and similar approaches are that they may be slow, that they deal awkwardly with large classes of plaintiffs, and that the smaller claims may never be adjudicated. My colleagues were apparently persuaded by these objections to a new federal statutory cause of action, and we abandoned this path early in our deliberations. In retrospect, however, I wonder if we were wrong to forsake this alternative so quickly. Others have not been similarly dissuaded. For a more detailed proposal for a liberalized state statutory cause of action for compensation, which is coupled with an administrative compensation remedy, see Jeffrey Trauberman, "Compensating Toxic Substances Victims: A Proposed Model Statute" (Environmental Law Institute: 1982).

Tier I suggests a number of innovative elements on which a thoroughgoing, near-exclusive administrative compensation plan could be based. Tier I is the indispensable nucleus for the proposal endorsed in our separate, co-signed statement. I only want to emphasize that the co-signers agreed that more generous recovery on Tier I than the panel draft contemplates is both necessary and feasible, especially if access to the plenary Tier II action is to be drastically curtailed. Some harms not adequately compensated in Tier I include impaired fertility, chronic miscarriage, various forms of neuropathology, teragenic effects, and fear of future cancer or of transmission of genetic effects to future generations -- all difficult to put a price on in any forum, but worth the effort in order to fashion an adequate compensation scheme. I concede the concern of some of my colleagues about the impact of expanded compensation on the need for simple insurable events, the indeterminancy in awards, and the enticement to some victims (as the agency's schedules of recoverable harms expand) to appear to suffer more than fellow citizens who are made of starner stuff. But I believe we should enlist the help of medical science in making these awards just and adequate, rather than focusing on keeping them small and definite, merely because they are somewhat subjective and still imperfectly understood from a medical viewpoint. Dismissing them as non-compensable "pain and suffering" does not do justice to the victims, nor does it force us to develop a better institutional response to the problem of hazardous substances compensation. As this effort yields results, the concern for limiting access to the plenary common law action should diminish, especially if the courts carefully apply the discretion entrusted to then under the formula in our co-signed statement.

Others have noted that our mandate directed us to examine recovery for injury from the broad category of hazardous substances, not merely from hazardous wastes. I share the concern that we did not frame our inquiry broadly enough, but the proposals discussed herein, and our conclusions about the inadequacy of the common law, both can be generalized to apply to the entire spectrum of common law recoveries for injury from hazardous substances. Admittedly such an enterprise would require contending both with categories of cases not fully analyzed here (injury from pesticides, radiation, drugs, chemicals in use, consumer products, etc.) and with an array of statutes for the protection of consumers, workers, patients, travellers, and others, but the framework for analysis and the basic criticisms remain the same.

One final comment: the reader of our report may be struck by how we seem to assume that hazardous substances injuries will occur in episodes involving either large numbers of victims injured only slightly, or few victims injured severely. It is at least as likely, however, that injuries will not conform to this pattern; rather, they may occur in episodes injuring a significant number of individuals severely, at least so far as hazardous wastes are concerned. I want to stress that Tier I recovery reaches far beyond small mass claims. Some Tier I recoveries for lost wages and medical expenses may be quite large. Nothing in our report would operate to keep Tier I recoveries at arbitrarily low levels, and, of course, if the liberalization recommended in the co-signed comment occurred, recoveries would be even larger.

COMMENTS BY CHARLES D. BREITEL, STUDY GROUP MEMBER

I regret that I cannot vouch for the Report by the Study Group. It is not that I believe that the work of the group has not been valuable. Within a far too limited time provided for the study, the Reporter and his staff have expended prodigious energies, especially of value in uncovering the problems and difficulties of solution. But for reasons that I will state without extended elaboration, the limited recommendations are neither practical, desirable, nor reliable. Nor can I accept the limited recommendations as free-standing suggestions.

I.

1. I read the statute which created the Study Group to direct expressly a study of the problems associated with toxic substances as covering all toxic substances and not merely the problems associated with hazardous wastes.

2. Even if the study directed were confined to hazardous wastes, that is, dump sites and spills of toxic substances, analytically the remedies do not permit such confinement. There are inextricable relationships among the issues of responsibility and liability, statutes of limitations, causation, components of damage recovery, latency of harm caused, social cost-benefit

analyses, deterrence, governmental regulation, and national interests in encouraging some (but not all) hazardous activities. Some (but not all) hazardous activities are rooted, necessarily, in the revolutionary development of a technological society in a competitive world. Most rules applied to hazardous waste sites and spills should and will, sooner or later, inevitably apply to toxic substances in general, whatever may be professed or intended.

3. The extraordinarily limited structure of the study group, without sufficient supporting staff, independent advisors, and informed and interested offerings from relevant disciplines and concerned enterprises in this difficult field, doomed the study group's work to be time-pressed, subject to unsuitable compromises in attempting to reach a consensus, and the ignoring of problems in devising a plenary remedy at the so-called Tier 2 level.

4. The fact is that in this century our world, and this nation in particular, has undergone a technological revolution in which chemistry, physics, medical science and research, electronics, and mechanics, have conjoined in a bewildering multitude of uses. These uses have provided a contra-Malthusian profusion of affluence of nutrition, services, medication, transportation, clothing, shelter, and countless other benefits regarded as positive and even essential goods. At the same time, the terrible costs of this revolution in disease and death to human beings and equally terrible costs to the environment, have been uncovered, some foreseeable and some not.

Without a global assessment, presumed remedies may be destructive of the benefits and may not alleviate or eliminate the costs, as a matter of technology or economics.

5. More technically, in assessing a desirable and just scheme of responsibility of the society itself, the industry, the enterprises, or entity, man's knowledge has to be classified. There are toxic substances and wastes which were, on any test, deemed not harmful and even beneficial at one time. And there are substances today, without any determinable responsibility, which appear to be utterly harmless or even beneficial or essential, which later, or tomorrow, will have been discovered to be toxic singly or in synergistic relation with other substances. There are also substances which for a variety of reasons should have never been used or devised without exhaustive testing, and the nature of the responsibility turns on the view one takes whether the possibility, even remotely, of harmful effects should have, with sufficient care and conscientiousness, been exhaustively tested before use or invention. Then, of course, there are the "easy" cases that enough was experienced, or known, even if very incompletely, to have put generators of the now-questioned substances, on notice of possible hazards.

6. Yet the immediately preceding discussion would still leave a gnawing residual problem. There are many hazardous substances and activities which must be balanced against the then- or presently-available alternatives. In preventing many of humanity's ills, disasters, and malnutrition, elimination

of hazardous substances and activities without a then-known alternative or one now known, the costs in death, disease, and environmental harm may be or may have been greater than that caused by the hazardous substances and activities.

7. The point is that the pristine jungle is not a safer place for human habitation or activity than the inevitably danger-ridden civilized society, which has given us the boon (problem) of enormous growth of population with increasingly greater longevity and health.

8. Against this backdrop, I cannot accept the Report's solutions in a narrow area without relation to the overall framework in which they are to fit.

II.

I have concrete difficulties with some of the Report's recommendations.

1. The analyses of fault, absence of fault, strict liability, and in some instances, absolute liability (however labelled), are in my opinion flawed. Whenever in our system persons or entities are held responsible for their activities there is always some degree of fault involved, even in "no-fault" contexts, if only because they are engaged in hazardous activities which have little or no social value. This is not to be confused with activities which are hazardous only if high, even the highest, degrees of care do not accompany engaging in the activity. (See, for one instance, the discussion, at pages 95 —107 of the Report, of ultra-hazardous and

abnormally hazardous activities with the suggestion that there was a marked change between Restatement, Torts and Restatement, Torts, Second §522 [cf. Restatement, Torts, Second, Tentative Draft No. 10, §520, Notes to the Institute]. Compare the discussion about the disagreement between the late William L. Prosser and Restatement, Second, on §520, although he had been the chief reporter for Restatement, Second, and for Tentative Draft No. 10.)

2. Subject to what I have said earlier, I strongly agree with the recommendation for an administrative remedy at the so-called Tier 1 level. However, I do not agree that there be a binding election between pursuing the administrative remedy or a plenary action. On the other hand, I cannot accept the proposed "exit toll" between the two because it most likely will clutter both the administrative agencies and the courts with proceedings. The "exit toll" is not severe enough to avoid "gambling", that is, obtaining easy recoveries at the administrative level, and then pursuing the plenary action. An alternative proposal with which I agree appears in the joint statement of Messrs. Anderson, Breitel, Freeman, and O'Connell which immediately follows the Report.

3. With respect to subrogation of administrative claims, I have the same concerns earlier expressed as to the nature of the responsibility upon which liability will be attributed to the actors in causing the harm.

4. With respect to presumption documents, I disagree with the notion that the more difficult it is to prove causation,

then the stronger must be the presumption. This can lead to the reductio ad absurdum that if causation is not provable at all, then there must be a claim-saving presumption. A good presumption should reflect realities and merely satisfying a constitutional limitation is not sufficient. Hence, a good presumption must be one that can be demonstrated to have a high probability, not merely that it is more likely than not to have reflected a true fact.

5. Of course, for the reasons earlier indicated "good" presumptions cannot be practically limited to the administrative remedy, whatever one may say about it. Nor should they be.

6. I disagree with the studied neglect of the plenary action remedy. It is in dire need of legislative relief, with proper attention to all the social and economic ramifications and limitations. It is not enough to leave the development to case law at the hands of adventurous claimants and their lawyers, at the excessive cost to the litigants and the court systems, and over the many years that such a development may entail.

7. I agree that in connection with toxic substances, limitations periods should be based on discovery, and not the causing events. But, here again, I would require a much better definition of when responsibility attaches to activity, and that it not be determined by an oversimplifed analogy to "no-fault" concepts, "strict liability" in the products field, or the "absolute liability" in the abnormally hazardous activities

area of the law. Without doubt, this would be one of the toughest problems to resolve, but there is no escaping it, unless we conclude, as I do not, that the traditional categorical tort remedies, even by "analogies", will suffice. Indeed, one should recognize that toxic substances, generally, including the waste disposal problem, in the absence of the usual "fault" or "responsibility" tests present a new and unprecedented kind of tort liability. Hence, it calls for a new design. Nor am I made to feel secure by the optimism of practitioners in the traditional tort field that time and the case law system will resolve all the global problems for the society or the innocent victims of its new affluence.

8. Because a legislature would be irresponsible if it enacted proposals which would destroy or seriously impair enterprise activities which our society as a matter of legislative policy determines must be retained at all or even high costs, no program for their approval should be recommended unless this consideration is factored into the analysis to support the program. Moreover, the answers to this kind of cost-benefit analysis determines whether there should be general tax revenue to compensate for harm to toxic victims and the environment, or whether there should be narrower levels of liability, provided the cost can be passed on to discretionary beneficiaries of the activity. Otherwise, the cost burden translates into an excise or sales tax which may be a retrogressive tax on the people. On the other hand, if the offending activity is one that legislative policy determines must be

permitted, then victims harmed by the activity should be amply compensated, as we do, in workers' compensation, but at higher levels. In this narrow context, it may or may not be material whether the burden is borne by the entity, the enterprise, the industry, or the society at large. It is material that we do not make the victims serve the public good by their misery as we necessarily do with soldiers in war.

CONCLUSION

I have touched only on some of my principal concerns. I have not elaborated on these or the other concerns I may have, since my purpose is no longer to persuade, but to explain why I am not able to join in vouching for the Report.

I am firmly convinced of the critical need for a rich legal development in the area of toxic harms. I am unqualifiedly satisfied that innocent victims of the technological revolution should be compensated — and amply — with respect to whatever hazardous activities are essential to society's need, survival, or the enrichment of life. It also is imperative that the primary concern for the future is to eliminate hazards, wherever possible, and that any compensation system, with limited or unlimited liability of actors or their insurers, must operate to the maximum extent to deter nonessential hazardous activities and to make standards of responsibility conducive to the highest standards of care. Studied or careless ignorance is just as much a ground for liability as direct knowledge of the risk.

In this context, the protestations of entrepreneurs (who benefit from the generation or disposal of toxic substances) of their innocence of fault or their essentiality to the society, must be viewed with an objective or even a skeptical mind, but not an unduly cynical one.

All of us, in a social sense, are a cause of the problem, either as beneficiaries or as victims. All of us must pay for the consequences of toxic harm, but the cost must be shared justly and, at the same time, feasibly. There are the alternatives and imperatives of rigorous government regulation of hazardous activities, social insurance for innocent victims of our past errors or future primary needs deemed essential on a cost-benefit analysis, the deterrence of dispensable activities, and the deterrence of actors with capacity to reduce or eliminate hazards. Beyond all this, there may be the limitations of society to compensate for or ameliorate toxic hazards, which in some measure may be another example of the unavoidable hazards of life generally.

The work of the Study Group and its Report are a first step, and a good one, if they inspire a new and broader effort with the same objective. One thing is certain, the society able to provide adequate remedies on the scale required must also be economically productive and its enterprises capable of surviving economically in a competitive world no longer confined to the opposite sides of the North Atlantic Ocean.

* * * *

I anticipate that some of the Study Group may add their comments to the Report as I have done. In such event, it is highly likely that I will agree with some of the views expressed, as indicated, for example, in the joint statement to which I have referred, but I will not have had the opportunity to express such agreement in this commentary because of the time limitations for the publication of the Report, the physical dispersion of the group, and the difficulties in achieving rapid exchanges of views without further unacceptable delay.

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COMMENTS OF
GEORGE CLEMON FREEMAN, JR. [1]

I agree with some but not all of the recommendations in the Report.[2] There are also several important matters on which we spent considerable time that are not dealt with adequately in the Report. I address these matters in this separate statement.

1. Judge Breitel's Separate Views

Before turning to the Report, I commend the thoughtful comments of the most distinguished member of our Study Commission, Judge Charles Breitel of New York. I agree with Part II of his statement and his Conclusion. While I also agree with his general observations in Part I, I would like to make two comments.

First, after much thought, I do not put as much distance between myself and the Report. I participated in the give and take of its formulation and suggested substantive points and language changes. Some were adopted; others were rejected. The final Report, like the product of most committees, is incomplete, sometimes inconsistent, and sometimes deliberately silent or obscure. These flaws are usually unavoidable in the elusive quest for consensus. Despite the Report's weaknesses, it focuses on the crucial legal issues in the area of the generation, transport and disposal of hazardous wastes. But I agree with Judge Breitel that these issues need to be resolved with additional views outside the legal profession. As he points out, they merit consideration by a much broader community, including economists, businessmen, political scientists, and medical and scientific experts. Thus I join in urging that before Congress or the States act on any of the recommendations of this Report, they need to hear from these other disciplines, particularly the economists.

Second, I do not regard our decision to limit our focus as a default. It was a practical solution to the otherwise impossible problems posed by our deficiencies in time, personnel and perspective. Moreover, the reasonableness of our early decision to confine ourselves to what was feasible should also be viewed in light of how the Study Group was authorized. Section 301(e) of the Superfund Act was part of a political compromise. It was a substitute for specific provisions in the Senate Bill that would have created a limited Federal plenary action in tort for persons injured by many toxic substances. Opponents of the Senate bill's provisions voiced a number of concerns. Those concerns were addressed in two ways in the enacted legislation. First, the final Superfund Act was limited to provisions for the cleanup of spills and disposal of hazardous wastes. Second, the federal tort action provisions were deleted and our Study was mandated.[3] The remaining concerns were reflected in the charge given our Study Group by Section 301(e).[4] Our study, limited as is, addresses those issues. And in this context, it is significant that none of us thought that creation of a federal tort remedy was necessary or desirable.[5] Instead, we recommend a more limited Federal social insurance scheme, which would be far less disruptive of the economy and existing legal obligations, less burdensome on the Federal courts and more consistent with our Federalism.[6]

At the same time, I agree with Judge Breitel that a much broader reexamination of all the aspects of our legal system governing liability for all toxic substances is needed. Indeed, I would extend it to encompass other facets of "tort" law that also are in ferment: products liability, occupational diseases, automobile accidents and airline accidents. There are Constitutional and legal principles that are common to all of these areas of the law. These principles, as well as their application or nonapplication in any particular area, merit serious review. Any inconsistencies among these fields should be rational and deliberate, rather than the result of political accident, as happens all too frequently. Finally, the composite incidence of all these laws on our society -- the economic, political and other social effects -- needs to be assessed to see where change is needed and which changes would actually be in the public interest.

2. The Report's "Tier One" Recommendations.

A. "Orphan" Sites. -- I join in the recommendation of a limited social insurance system to aid persons who have been injured in the past through the disposal of hazardous wastes at sites that are now "abandoned" or "orphaned." State common law and most present State statutes provide no adequate remedy to compensate victims of improper disposal of hazardous substances at "orphan" sites. Since it is reasonable to assume that most of these wastes originated in past industrial activities in interstate commerce, it is also reasonable to assume that the country has benefited generally from the economic activities that generated them. From hindsight, we can see that improper disposal of these wastes in the past was in part attributable to the failure of our State governments to use their police powers adequately to control hazardous waste disposal or of our Federal Government to do so through its commerce power. Society as a whole should share some of these costs by providing compensation to those injured for actual injuries to health and for loss of wages which have not been compensated by other means. Since we are dealing with past conduct, the government, either at the State or Federal level, affords the only practical means of providing this limited compensation.

Because of the probable interstate commerce origin of these wastes and the Federal Government's greater taxing resources, when we discussed this matter last fall it appeared reasonable to recommend that the Federal Government fund this program. But since then several States have enacted or are considering State laws somewhat similar to our Tier One recommendation. California, for example, did so on September 25, 1981.[7] New York reportedly considered such a law this year.[8] If a substantial number of the States in which most of these orphan sites are located adopt appropriate legislation by the time Congress considers legislation along these lines, the practical need for Federal legislation dealing with orphan sites may have disappeared. In any event, Congress should take careful note of the States' ongoing efforts and take advantage of their experiences under their new statutes.

B. Existing and New Sites. -- I also join in the recommendation for creation of a Federal Tier One System to aid persons injured by hazardous wastes at ongoing or new disposal sites because it may be regarded properly as an incidence of Federal regulation of these sites under the Resource Conservation and Recovery Act (RCRA). Equally important, our current State tort systems generally do not provide a satisfactory means for dealing with relatively small claims whatever their origin.[9] Except where there are a number of similar small valid claims arising from the same situation that may be consolidated into a single trial, the expense of litigation often precludes recovery. Where the injury arises through the deliberate or negligent action of others, leaving the loss totally on the victim is obviously unfair. Also public awareness of this general deficiency of the present tort system may strengthen public opposition to socially needed or desirable economic activities in which the generation, transportation or disposal of hazardous wastes is unavoidable. Thus the creation of a social insurance compensation system would not only be fairer to those who are injured from hazardous wastes through no fault of their own, but also could lead to greater public acceptance of RCRA licensed hazardous waste management facilities that may be essential to our long term economic prosperity.[10]

C. The Limited Extent of Our Knowledge. -- I wish to emphasize that while I support the general concept of a Tier One system, subject to the reservations expressed below, I do not do so because I believe that there are many persons who have been injured by exposure to hazardous wastes and not compensated from other sources. Contrary statements in the Report have no basis in the information available to us. Repeated requests by the Group to the Justice Department for relevant "hard" evidence currently available to it and to EPA as to the extent of this problem produced very little.[11] Our Study Group had no practical means of remedying this lack of information since we were not constituted to be a fact-finding body. The Report correctly indicates the Group had no alternative but to conduct its Study on the assumption that substantial health problems caused by hazardous wastes exist and will occur. But statements to the effect that "some more evidence of hazard has become available" reflect neither a finding by the Group nor my personal view.[12]

D. Funding of a "Tier One" System. -- Based on the information available to the Study Group -- or, more accurately, the lack of information -- I cannot join in the Group's recommendation that the Tier One System be funded by a special tax on the chemical and oil industries, and perhaps other selected industries, rather than from general tax revenues.[13] The Study Group knows virtually nothing about the probable magnitude of direct costs of a Tier One system. Those costs would include funds paid to claimants and administrative costs.[14] Potential claims would include (a) those attributable to exposures to wastes disposed of prior to the enactment of any Tier One system and (b) those resulting from exposures to wastes disposed of after that date. The special tax the Study Group proposes would have to fund the total costs of "pre-enactment" disposal based claims, while subrogation would fund some of post-enactment based claims.

It is reasonable to suppose that most of the pre-enactment activities involving waste transportation or disposal were not licensed under RCRA, while virtually all of the post-enactment activities will be licensed.[15] Little is known about the actual nature, extent and location of hazardous wastes disposed of in the past across this country.[16] Also, virtually no information is available on the nature and extent of any personal injuries or property damage such wastes may have caused.[17] Turning to claims based on future activities, the potential costs of a Tier One system are also equally unpredictable. It is reasonable to suppose that the frequency of claims based on future disposal is more controllable because of the much greater care RCRA licensing will require. But there is always the problem that things viewed as harmless from today's knowledge may prove hazardous from tomorrow's hindsight. The only way to guard totally against the dangers of the currently unforeseeable consequences of economic activities is not to undertake them. But I do not see how anyone could seriously advocate society's prohibiting all activity that has not been proven to be "risk free."[18] The economic and political consequences of imposing a "risk free" standard of care on all economic activity would literally wreck our society.

The Parkinson's Law of bureaucratic programs insures that claims will be made and money spent under any government compensation system. If in such a system cancers which have multiple actual causes are presumed by law to have been caused solely or primarily by exposure to hazardous wastes, the potential for abuse is apparent. Thus while we could be confronting potential claims that aggregate only several millions, these claims might soar into billions.[19] Indeed, any dollar estimates of the costs of a Tier One system made in the near future may prove as erroneous as those made for the Black Lung Fund when it was amended in 1977.[20] The principal incidence of these unknown costs would fall, through the Tier One tax, on the chemical and oil industries. We have no idea what the economic effects would be on these industries and our economy.

In contrast, we know that our American economy is part of a world-wide economy, that many American industries are now being severely challenged by foreign producers and that our economy is in the midst of a severe recession.[21] The day-to-day livelihood, health and the security of our people depend upon the continuing ability of our domestic industries to compete successfully with foreign producers. This reality leads me to conclude that proponents of funding a "Tier One" system through increases in the current Superfund Act tax on specific American industries should have the heavy burden of proving that its incidence would not impede the ability of our domestic producers to compete with foreign producers in our own and foreign markets. If the ultimate result of this Group's proposals and other efforts to internalize the social costs of activities that produce hazardous wastes is to impair substantially that ability of our domestic industries to compete with foreign producers, then not only would these efforts at internalization fail, but also other direct and indirect external social costs would be visited on other citizens.[22] Those external costs could substantially exceed the external costs now being borne by others because of hazardous wastes disposal.

In summary, we must be careful in righting wrongs flowing from incomplete internalization of the social costs involved in the generation and disposal of hazardous wastes not to go overboard and impose a whole new set of non-internalized social costs -- loss of trade, unemployment, the disappearance of useful products -- that are equally capriciously and unfairly imposed on other segments of our society. Two wrongs can not make a right.

E. Statutory Presumptions. -- While I join in the Report's recommendation for a system to create "Toxic Substance Documents", I cannot support the particular statutory presumptions recommended.[23] Good presumptions can play a useful role in a Tier One system, just as good presumptions are an important part of the existing common law. But the statutory presumptions proposed here are not good presumptions.

The principal purpose of presumptions in the first tier ought to be to facilitate expedited payments to "qualified", or "worthy", recipients. They should be persons who have been injured primarily because of the hazardous wastes. Two secondary purposes should be to ease the burden on the administrators of the fund and to hold down overall transactional costs.

However worthy these three objectives, presumptions should be employed only where they are a valid reflection (a shorthand summary) of what is generally true. Since absolute truth is elusive in the areas we have considered, we should settle for the second best -- the prevailing views of the medical and scientific experts. But that is far better than the third best -- legislative fiats that reflect policy biases as to who should win rather than what is most likely to be objectively determined truth. One of the major problems with the three recently repealed Black Lung Act statutory presumptions was that they did not meet this criterion of truth, and they well nigh wrecked that program.[24] Throughout the Study Group's deliberations Judge Breitel continued to remind us that in the common law the strengths of presumptions vary, and they vary directly in proportion to the reliability of their perceived nexus to the truth.[25]

Diseases such as cancers may have multiple causes. If the Group's two statutory presumptions are intended to make exposure to hazardous wastes the principal legal cause of such injuries and thus to lessen the importance of evidence of other causes, they cannot pass muster for the broad array of hazardous materials and diseases envisioned in the proposal. While these presumptions may well be valid for the rare form of cancer that is closely correlated statistically to asbestos inhalation, the strength of that single causal linkage appears to be exceptional. Cancer may often be the result of multiple factors acting together: heredity, diet, radiation exposures, climate, as well as what we breathe, eat and touch. One of the major problems with the implicit single cause criterion in the now repealed Black Lung Act presumptions was that they ignored this reality. What is called for in formulating reasonable presumptions in these multiple cause areas is probability analysis.[26]

The farther a presumption departs from reality, the more arbitrary it becomes. And the more dubious presumptions that are built into a statutory scheme, the more unfair it becomes.[27] The Supreme Court once said:

> _[R]es judicata_ renders white that which is black, and straight that which is crooked... No other evidence can afford strength to the presumption of truth it creates, and no argument can detract from its legal efficacy.[28]

That should _not_ be said of any presumptions written into any statute enacted pursuant to this report's recommendations or subsequently adopted under the administrative scheme recommended.

Turning to the recommended Toxic Substance Documents, if they are the product of a rigorous rulemaking process where scientific and medical peer group review of supporting studies and their underlying data is possible, then they can substantially aid in expediting recoveries and reducing transactional costs. Thus, preparation of these Documents should be entrusted only to an impartial federal agency, as distinguished from a "mission oriented" agency. The agency should also have no connection with funding of the Tier One system. The best scientific and medical evidence available should be assembled and tested through fair procedures where all concerned could have access and opportunity to participate. This would require going beyond the present bare bones notice and comment provision of the current Administrative Procedure Act to the "hybrid type" procedures that Senate Bill S. 1080, which was passed on March 24, 1982 by 94 to 0 vote, would afford.[29]

Documents produced through such a hybrid rulemaking process would be roughly equivalent to a scientific or medical treatise or journal article. Compiling and sorting the complex evidence in a single, generic proceeding would obviate the need for repetitious marshalling of the same evidence in case by case processing of multiple claims.

There is precedent for such an effort to expedite reasoned decision making in the experience of the Nuclear Regulatory Commission with hybrid rulemaking in dealing with complex generic issues. In the early 1970's the licensing of nuclear powerplants came to a literal standstill because generic health and safety issues under the Atomic Energy Act and generic National Environmental Policy Act issues were being adjudicated over and over again in individual plant licensing cases. The Commission finally broke the licensing impasse by removing each of these issues from those multiple forums and resolving it in a single generic rulemaking. Most commentators and courts applauded this process.[30]

Any discussion of presumptions must also take into account the reality that presumptions formulated for a Tier One system will eventually find their way by analogy into the Tier Two tort system. The Report recognizes that application of the proposed statutory presumptions would be grossly unfair if applied in Tier Two and seeks to avert this result by declaring that the "carryover" should not occur.[31] Such declarations are, however, likely to prove as ineffective as King Canute's order to the tide not to rise. In our Group discussions, Judge Breitel pointed out that legislative determinations are a source of common law principles. They will continue to be so however we opine. I believe that the better remedy to the perceived danger of abuses in Tier Two lies rather in greater restraint in the formulation of the presumptions for Tier One. If there were no statutory presumptions for Tier One and the only presumptions that were formulated administratively were factually sound ones developed through the deliberative process discussed above, it would be difficult to justify their rejection on either tier. There is little social merit in requiring the same factual matters to be relitigated time and time again.

F. Strict Liability. -- Judge Breitel in his comments points out that the analyses of "strict liability" adopted in the Report are flawed.[32] The Report's view is at the outer fringes, rather than in the mainstream, of current thinking on this aspect of the common law both in the courts and academia.[33] I disassociate myself from this aspect of the Report and instead concur in Judge Breitel's views.

G. Retroactivity. -- One topic that recurred again and again in our Group discussions was "retroactivity." Some of this discussion touched on the questions of Constitutionality, which an Appendix to the Report discusses,[34] but the bulk of it centered on questions of policy, which the Report does not discuss in sufficient detail.[35] This glossing over should not obscure one of the Study Group's most important decisions: the recommendation that subrogation for claims paid out of the Tier One system not apply to wastes disposed of prior to the enactment of any implementing legislation. Since I was one of the principal opponents of retroactivity, I believe it important to spell out the policy reasons for our opting against it.

Our discussion of retroactivity centered on the currently active hazardous waste disposal facilities. We decided to recommend imposition of liability for injuries or damages which were unforeseeable only on a prospective basis. Thus, the operator of an existing facility would have the option of staying in business under the new rule or closing it down. Concerns in the insurance industry, where "claims made" and "occurrences" policies still apply for differing sites, might also be lessened. As to past acts, the negligent operator would continue to be liable to the victim (or to those who compensated him) under common law principles, but the risk of unforeseeable injuries would rest on the Fund and not the operator.

In deciding against retroactive application of a "strict liability" subrogation claim, the Study Group looked to the same equitable principles which underlie the constitutional prohibition against *ex post facto* laws, due process and the general rule of construction that a statute should only be given prospective application.[36] We also recognized that sporadic imposition of strict liability on a retroactive basis poses potentially serious impediments to the long term availability of adequate insurance coverage at reasonable rates.[37]

H. *Election of Remedies*. -- On this issue, I join in the Anderson, Breitel, *et al*, statement and dissent from the Report's recommendation.[38]

I was one of the five members of the Group who voted to require a "binding" election between pursuing Tier One and Tier Two remedies. I understood that such a requirement would also have included a limited "safety valve" to avoid substantially unjust or unconscionable results. The proposal in the preceding joint separate statement, which was advanced after our final meeting in Boston on June 28, is an elaboration of that concept.

A limitation on election is needed to make a two tier system work. Relaxation of tort standards posed by (1) the statutory presumptions recommended in Tier One and (2) the Report's extreme views of strict liability if applied in Tier Two, might result in claims in both Tiers that would make predictability of economic risk impossible. Such predictability is needed by industry and insurers. Without that predictability the system would become increasingly costly and economically inefficient. It is also possible that insurance could become unavailable.

Thus, in setting any compensation schedules for Tier One, considerable care should be taken in setting ceilings on specified awards. The amounts of compensation available might have to be limited in rough relationship to the weakening of the causal connection resulting from adoption of the recommended statutory presumptions.

Concern over predictability also leads me to caution that great care should be taken in fashioning schedules for "the psychological, social and related injuries sustained ... geared to tangible events objectively identified as physical and neurological consequences of physical injuries." What is intended is to provide for schedules for specified physical injuries somewhat similar to those available in first party accidental injury policies. The underlined words have been carefully chosen to preclude payments for what is essentially the subjective component in "pain and suffering" awards. That component in its more exaggerated form becomes "punitive" or "exemplary" damages. But whatever it is called, the vengeance concept has no place in a Tier One system.[39]

I. Punitive Damages -- I also believe that punitive or exemplary damages have no socially desirable role in Tier Two when a comprehensive scheme of regulation such as RCRA, encompassing civil and criminal sanctions, is in place. I regret that my colleagues who were divided over this issue decided not to address it one way or the other in the Report. For my part, I believe that where Congress has exercised its commerce power to impose a comprehensive system of regulation over an industrial activity or practice and elects to leave private remedies to State law, it should nevertheless preempt any State punitive and exemplary damages since in essence they duplicate the criminal and civil sanctions provided in the

Federal statute.[40] Vigilantes have no place when the sheriff takes over. In my view, that duplication also constitutes an unreasonable burden on interstate commerce since it may furnish a major deterrent to engaging in worthwhile economic activity. A third reason is that unless class actions are to be required, permitting punitive damages to be imposed on activities regulated under RCRA might result in overcompensation of a few claimants and their lawyers to the detriment of many equally worthy claimants.[41]

3. Federal "Common Law" and Federal Implied Rights of Action

The Study Group received an inquiry from Senators Stafford and Randolph concerning the effect of two recent Supreme Court decisions, the Milwaukee and Sea Clammers cases on Federal common law in this area.[42] I agree with the conclusions in the Report that Federal common law no longer exists and when existent probably did not afford private parties, as distinguished from States, a right of action in the Federal courts.[43] In addition, I do not believe that Congress can constitutionally create or recreate a private right of action in common law through a "savings clause".[44] Congressional modifications of savings clauses in regulatory statutes, such as those recently considered in connection with S. 1716 and H.R. 6307,[45] would not change the substantive result in Sea Clammers or United States v. Price.[46] They would only serve to produce unnecessary confusion and litigation. It is also clear that the views expressed in one Congress about a prior Congress' intent (e.g., suggesting the Supreme Court's "misinterpretation" of that intent) are entitled to little weight because of the abuses apparent in post-hoc legislative history.[47]

4. Reexamination of the Current Tort System

Concern over social costs and their incidence leads me to emphasize the importance of the general call of the Study Group and Judge Breitel for a reexamination of certain fundamentals of our current tort system.[48] The thoughtful paper submitted to us by Richard Schmalz, which is summarized extensively in Part III-B of the Report, contains specific suggestions on how liability might be "channeled" in generating, transporting and disposing of hazardous wastes, following precedents in the nuclear field both in this country and in Western Europe.[49] His suggestions merit serious consideration and may prove to be one of the most important contributions to current thinking in this general area stimulated by our Study.

Serious questions exist as to whether our present tort system is operating at optimal efficiency, particularly where it requires duplicative insurance against virtually unlimited damages, coupled with ever increasing risks of liability based only on the most tenuous connection with the event actually causing injury.[50] Are looser and looser definitions of "strict liability" in the public interest?[51] Are efforts to extend the concept of "joint and several" liability to allocate costs to the "innocent" as well as the "guilty" in the public interest?[52] Are there fairer, more efficient, less costly alternatives for compensating persons for personal injury and property damage?

These fundamental questions as to the Tier Two tort system, which our recommendations would leave substantially intact and little changed, need to be raised and answered with regard to compensation for injuries and damages from hazardous wastes and the numerous other fields of tort law that are now in controversy.[53]

NOTES

1. Although I was one of the three members of the Study Group named by William Reece Smith, then President of the American Bar Association, I have participated in the work of the Group as an individual member of the bar and not as a representative of that association. I also wish to acknowledge the assistance given me by my associate, Alfred Light, and my research assistant, Karen Donegan, during this Study.

2. Like Judge Breitel, I do not vouch for any of the research papers that appear in the appendices. Some were furnished to us in the course of our deliberations, others only in the last few days of our efforts. Thus, I was able only to review drafts of several of them, which I commented on in letters which appear in the "Comments to the Appendices."

3. The compromise eliminated both a federal private cause of action and joint and several liability; added a third-party defense; eliminated all third-party compensation; and established a limit on compensation for each incident of damage to natural resources. 126 CONG. REC. S14,967-68 (daily ed. Nov. 24, 1980) (remarks of Sen. Stafford); id. at S15,004 (remarks of Sen. Helms); Grad, TREATISE ON ENVIRONMENTAL LAW §§ 4A.01(1)(f), 4A.05 at 4A-164); Report at 38; see 126 CONG. REC. S15,002 (daily ed. Nov. 24, 1980) (compromise superfund does not provide out-of-pocket medical expenses for individuals) (remarks of Sen. Williams); id. at S14,967 (compromise superfund eliminates virtually all third-party compensation, including payment of medical expenses to victims of waste releases) (remarks of Sen. Stafford); 38 CONG.Q.WEEKLY REP. 3435 (Nov. 29, 1980) (deletion of medical expenses "biggest concession" in compromise bill); cf. S.1480, 96th Cong., 2d Sess. (1980) (original Senate bill calling for strict liability private cause of action); S.Rep. 96-848, 96th Cong., 2d Sess. (1980); S.1486, 97th Cong., 1st Sess. (1981) (attempt to amend Superfund Act to include private cause of action previously rejected). The proposed provisions in S.1480 reflected some, but not all, of the provisions along the same lines in other bills in that and several other Congresses. E.g., S.1483, 97th Cong., 1st Sess. (1981) (radiation exposure); H.R. 85,

97th Cong., 1st Sess. (1981) (oil spill damage); S.681, 97th Cong., 1st Sess. (1981) (oil spill damage). The Report explains the Study Group's rationale for limiting the study at pages 26-27.

4. *See*, *e.g.*, S.Rep. 96-848, 96th Cong., 1st Sess. 117-118 (1981) ("The [proposed Federal tort] system of liability . . . is unique and bizarre . . . The problems in such areas of civil procedure as res judicata, collateral estoppel, conflict of laws, and bar and merger have been wholly overlooked . . . [T]his federal alternative available as a partial remedy will seriously retard the development of the common law . . . [T]here has been very little demonstration made in the record as to the financial ability of the victim compensation fund to address the claims which will be honored . . . [T]he fee system is seriously deficient and inequitable.") (minority views of Sen. Simpson); *Id*., at 119-122 ("S.1480 changes State tort law . . . [and] constitutes an intrusion into judicial processes . . . upon which industries and businesses have relied in assessing their exposure to liability and the availability of insurance . . . The definition of 'hazardous substance' is exceedingly broad . . . [A defendant] would find himself facing a barrage of suits in which he was being held strictly liable for all of the damages regardless of whether or not he had any control over the situation . . . [The bill] does not provide for apportionment in the case where a significant contributor who, for example, was responsible for 60% of damages must bear the full 100% of the costs because the other contributors cannot be found or identified or are found to be insolvent . . . The issue of applying the new standards retroactively remains a troubling one . . . [Subrogation would] shift the balance of litigation . . . [and the law would no longer represent] the drawing of an equitable balance between private litigants . . . . Consequently, it would appear that private sector decisions [would] have to be made [on basis of the worst case]: (1) the defendant faces litigation brought by the Federal government [by subrogation of private claims]; (2) he is one of a few or the single defendant in a case where the release was largely caused by another operator; (3) the more significant contributor is insolvent; (4) actions beyond his reasonable control caused the release; and (5) joint and several liability under S.1480 expose the defendant to the possibility of paying all the damages.") (minority views of Senators Domenici, Bentsen and Baker).

5. This rejection also took into consideration but rejected the arguments advanced in current literature which called for such a remedy both before and after passage of CERCLA. E.g., Meyer, Compensating Hazardous Waste Victims: RCRA Insurance Regulations and a Not So "Super" Fund Act, 11 ENVIR.L. 689, 719 (1981); Sobel, A Proposal for the Administrative Compensation of Victims of Toxic Substance Pollution: A Model Act, 14 HARV.J.LEGIS. 683 (1977) (similar to Brodhead bill). Note, Inactive or Abandoned Hazardous Waste Disposal Sites: Coping with a Costly Past, 53 S.CAL.L.REV. 1709, 1745 (1980). The Study Group explicitly considered the S.1480 and Brodhead bill proposals and declined to recommend them. E.g., Report, at 215-218, 228-229, 238-239.

6. Younger v. Harris, 401 U.S. 37, 44-45 (1971) (Black, J.) ("[Continued adherence to the principle of Federalism encompasses] a notion of 'comity,' that is, a proper respect for state functions, a recognition of the fact that the entire country is made up of a Union of separate state governments, and a continuance of the belief that the National Government will fare best if the States and their institutions are left free to perform their separate functions in their separate ways. This, perhaps for lack of a better and clearer way to describe it, is referred to by many as "Our Federalism" and one familiar with the profound debates that ushered our Federal Constitution into existence is bound to respect those who remain loyal to the ideals and dreams of "our Federalism." The concept does not mean blind deference to "States' Rights" any more than it means centralization of control over every important issue in our National Government and its courts. The Framers rejected both these courses. What the concept does represent is a system in which there is sensitivity to the legitimate interests of both State and National Governments, and in which the National Government, anxious though it may be to vindicate and protect federal rights and federal interests, always endeavors to do so in ways that will not unduly interfere with the legitimate activities of the States."); see also Friendly, Federalism: A Forward, 86 YALE L.J. 1019 (1977). The Study Group discussed the possibility and potential unconstitutionality of mandating State implementation and administration of the proposed Tier One compensation system. But we noted that the Supreme Court "never has sanctioned explicitly a federal command to the States to promulgate and enforce laws and regulations." Federal

Energy Regulatory Commission v. Mississippi, No. 80-1749 (Jun. 1, 1982), slip op., at 18. The Group opted instead for a "cooperative federalism" or partnership role between the two levels of government based on the model in the Federal Water Pollution Control Act, rather than a hierarchical model "antithetical to the values of federalism and inconsistent with our constitutional history." FERC v. Mississippi, supra, (O'Connor concurring and dissenting), slip op., at 1. The national government should not be able "to force state governments to administer unpopular programs, thus transferring political liability for those programs to the States." FERC v. Mississippi, supra (O'Connor), slip op., at 14n.19, citing Advisory Commission on Intergovernmental Relations, THE FEDERAL ROLE IN THE FEDERAL SYSTEM: THE DYNAMICS OF GROWTH, HEARING ON THE FEDERAL ROLE, p. 32 (October 1980) (statement of Daniel J. Elazar). cf. S.Rep. No. 97-151, 97th Cong., 1st Sess. 52 (1981) ("a policy . . . . implicit in the institution of federalism created by the Constitution.").

7. CAL.HEALTH & SAFETY CODE, §§ 25370- 25382 (West 1981); see Report, at 66-67. I believe that an "orphan site" category includes (a) sites for which no solvent disposal site operator exists and (b) sites for which no other responsible party connected to the site should be held responsible. For example, landowners on whose property waste was disposed without their knowledge should not be responsible parties. See Report, at 244. Neither should present landowners who purchased property without reason to know the dangerous condition existing on the land. See Report, at 34-35.

8. N.Y. TIMES (Jun. 22, 1982), p. B.4. The state Superfund law New York enacted, however, does not provide for compensation of personal injuries. S. 10620 (July 2, 1982).

9. See Report, at 178-179.

10. These same factors were evident in the Reagan Administration's decision to promulgate compulsory financial responsibility requirements for licensed owners and operators of hazardous waste management facilities. 47 Fed. Reg. 16544, 16545 (Apr. 16, 1982) (to be codified at 40 C.F.R. Parts 123, 264 and 265). They also have been relevant in discussions at the International Institute for the Unification of Private Law (UNIDROIT) Committee of Governmental Experts, which

is preparing uniform rules for European nations relating to liability and compensation for damage caused during the carriage over land of hazardous substances.

11. Report, Part II; see also Grad letter to Assistant Attorney General Carol Dinkins, dated December 18, 1981, and Freeman letter to Chairman Zazzali, dated March 2, 1982 in the "Comments to the Appendices."

12. See Report, at 184. The Love Canal study released July 14, 1982 suggests that health problems related to that site may have been overstated. United States Environmental Protection Agency, ENVIRONMENTAL MONITORING AT LOVE CANAL, EPA-600/4-82-030a (May 1982). See also H.R.Rep. No. 96-IFC 31, 96th Cong., 1st Sess. 33 (1979) (concluding that early estimates of the number of waste sites were in error); Report, at 21n.19, 23n.34; one puzzling aspect of determining the extent of the abandoned waste site problem has been the suggestion that EPA is experiencing difficulty in finding sites appropriate for cleanup. See EPA Expecting to Run Out of Sites to Clean Up, Expands Eligibility, 13 ENVIR. REP. (BNA) 195 (Jun. 18, 1982).

13. The potential for abuse of the Tier One System remains even if the system were to be funded out of general tax revenues. However this potential is greater in the "special fund" situation because the periodic scrutiny incident to the annual budget and appropriations process is less rigorous in the case of special funds. Recent experience with the Federal Black Lung Benefits program and the New Jersey Spill Compensation Fund furnish examples. See Lopatto, Amendments Fight Excesses of Black Lung Statute, LEGAL TIMES (Mar. 22, 1982); NJ Auditors Question Spill Fund Management Controls, HAZARDOUS WASTE LIT. REP. 2,444 (May 18, 1982).

"Superfund" itself is controversial because funds have not been advanced to clean up abandoned hazardous waste dumps as expeditiously as Congress apparently intended. It has been charged that this delay has been attributable, in part, to EPA and the Justice Department's preoccupation with pursuing potentially responsible parties. See Baise & Bourdeau, EPA's Implementation of the Superfund Response Program, 3 ENVIR. ANALYST 3 (May 1982); Administrative Delays Plague Cleanup Under Superfund, Indiana Congressman Says, 13 ENVIR. REP. (BNA) 167 (Jun. 11, 1982); cf. 47

Fed. Reg. 20664, 20666 (May 13, 1982) (guidelines for using the imminent hazard, enforcement and emergency response authorities of Superfund and other statutes); *EPA Guidance Memorandum on Establishing National Priorities List Under Superfund (Dated June 28, 1982)*, 13 ENVIR.REP. (BNA) 339, 341 (Jul. 2, 1982) ("EPA will consider Fund financed cleanup of [mining] sites only after all available enforcement efforts fail.").

Robert Hershey has reported more generally on rising criticism of the Federal Government's many insurance programs, which even without counting social security or unemployment insurance now cover more than $2,000 billion in risks. He quoted former OMB official Robert G. Penner, now at the American Enterprise Institute, as saying, "The real problem is the lack of careful scrutiny of these things." Hershey, *U.S. Insurance: Critics Grow* 131 N.Y. TIMES (Jun. 8, 1982), at 1, col. 2; 6, col. 1.

14. One major subcategory of administrative costs virtually overlooked in the Study Group's deliberations (*see* Report, at 231) are intergovernmental costs, the costs of assessing each State's prospective need for Tier One funds from the Federal Government and the timely periodic transfer of funds between the two levels of government. Because of (1) the proposed relaxation of liability (or "eligibility") requirements through the recommended statutory presumptions in Tier One, (2) the interpretation of "strict liability" advanced by the Report for Tier Two, and (3) because of the generous benefit levels recommended, the potential for the kind of "tragedy of the commons" which the social services block grant program (Title XX of the Social Security Act) experienced in the seventies exists. Derthick, UNCONTROLLABLE SPENDING FOR SOCIAL SERVICES (1977); Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243 (1968). This "tragedy" is that each State obviously has an incentive for maximizing its share of the funds, and in the absence of identifiable limiting principles on the group of eligible claimants and the consequent ability of the federal government to estimate need on a rough actuarial basis, the system's overall costs could well soar notwithstanding a modest need for the system to compensate injuries "actually" caused by hazardous wastes.

15. *See* Report, at 161, 230-232.

16. *See* Report, at 7, 10-11.

17. *See* Report, at 8-17; 24n.47.

18. *See* Leape, *Quantitative Risk Assessment in Regulation of Environmental Carcinogens*, 4 HARV.ENVIR.L.REV. 86, 107 (1980); Ricci and Molton, *Risk and Benefit in Environmental Law*, 214 SCIENCE 1096, 1099-1100 (1981).

19. The direct costs of the Tier One system would be substantially higher because the Group would allow recourse to the Tier One Fund at inactive waste dumps, even though a solvent responsible party is known, as well as at "orphan" sites. This contrasts with the Black Lung Act's compensation of miners only "when there is no responsible mine operator available to provide payments, when there is operator default and when the coal miner's last employment was before January 1, 1970." Baram, ALTERNATIVES TO REGULATION 216 (1982). I would limit compensation from the Fund at inactive sites to "orphan sites" as California did in its recently established state Superfund law. CAL. HEALTH & SAFETY CODE §§ 25370-25382 (West 1981). *See also* Report, at 66, 267n.94.

20. Claims under the Black Lung Benefits Act have exceeded substantially earlier estimated costs. *See* U.S. DEPARTMENT OF LABOR BRIEFING PACKAGE ON BLACK LUNG LEGISLATIVE PROPOSAL (1981). For example, in 1977, benefit outlays for 1978-81 were estimated to be $1,121,100,000. H.Rep. No. 95-151, 95th Cong., 2d.Sess. 27 (1978), *reprinted in* [1978] U.S. CODE CONG. & AD. NEWS 263. Actual expenditures proved to be $2,178,400,000 (a $1,057,300,000 difference.) 127 Cong. Rec. S. 15480 (Dec. 16, 1981). Black Lung benefit expenditures since 1969 stand at over $9 billion. HEARINGS BEFORE THE SUBCOMMITTEE ON OVERSIGHT OF THE COMMITTEE ON WAYS AND MEANS, HOUSE OF REPRESENTATIVES, 97th Cong., 1st Sess. 3 (1981) (Henig, Morton E.).

21. The timing of governmentally mandated expansions of industry costs could well be crucial to the prospect that the additional costs could be absorbed or passed on to consumers and thus internalized. Even where foreign competition is not a significant factor in the U.S. market, internalization is much less likely to occur when the economy is in a recession or depression. *See* Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 YALE L.J. 499, 520 (1961).

22. We should profit from our experience in other areas of environmental law. In some areas, such as automobile emissions controls under the Clean Air Act, we have been successful in internalizing pollution costs in the American submarket for automobiles because all cars sold within this country must meet the same emissions standard wherever they are manufactured. But efforts at internalization of pollution control costs have largely failed in U.S. submarkets such as steel, where foreign producers are not required to incur equivalent control costs. Tariffs are one means for offsetting otherwise discriminatory costs on our own industries, but they run counter to other national priorities. Even if tariffs were imposed for this purpose, they could provoke similar barriers to sale of American goods abroad. There are potential international forums for resolving these "internalization" dilemmas through negotiation. See Legal Committee Completes Draft Covering Hazardous Substances Liability, 5 INT'L ENVIR.REP. 182 (May 12, 1982) (United Nations Intergovernmental Maritime Consultative Organization); OECD Waste Management Policy Group Plans Work on Export of Hazardous Waste, 5 INT'L ENVIR.REP. 183 (May 12, 1982) (Organization for Economic Cooperation and Development). But as yet they are ineffective. A recent OECD report presented at the May 1982 Nairobi meeting on the global environment warned developing countries about the environmental aspects of their planned activities. "These countries are aiming at higher than average growth rates, their environmental machinery is incomplete, the backlog of pollution is large, and consequently the pressure on their relatively fragile environment is already severe." Nairobi Meeting on Global Environment Looks at Progress Made in Past 10 Years, 5 INT'L ENVIR.REP. 175 (May 12, 1982) (statement of James MacNeil, Director of OECD's Environment Directorate).

23. See Freeman letter to Grad, dated Feb. 19, 1982, in "Comments to the Appendices." In addition to believing that the recommended statutory presumptions in Recommendation Four [Report, at 198-199] are not sound policy here, I find their wording confusing. They represent a drastic modification of presumptions initially suggested by the Reporter [Appendix M, p. 314] which were rejected by the Group.

The Study Group modified the Reporter's suggested presumptions in two major ways. First, recognizing that diseases associated with hazardous waste exposure also may be associated with other causes, the Study Group substituted the words "contributed to" for "caused" in presumption (a) and voted to delete the word "solely" from presumption (b). Second, the Group decided to delete all references to a "person against whom a claim is made" in the statement of the presumptions and the showing which triggers them because it wished to eliminate the necessity for the claimant to identify a potential subrogee once he had identified the source of his exposure (i.e., the waste site or incident).

The presumptions as modified do not resolve the question of how strong a causal connection there should be between an industrial activity and an injury before the loss should be shifted to the Fund. Nor do they preclude the possibility that (a) the amount of a compensation award would be scaled in relation to the strength of the causal connection or (b) reduced if other contributory causes of the disease were present.

What do the modified presumptions actually accomplish? To benefit from either presumption, the claimant must prove by a preponderance of the evidence (1) the existence of a source which at the time of exposure was part of the hazardous waste system, (2) exposure to such hazardous waste, and (3) that the claimant suffered injury of the kind that is known to result from such exposure. Having made these showings, the first presumption that arises is that the waste contributed to his injury. Thus, the claimant is entitled to at least nominal damages unless the Fund rebuts the presumption, so long as the other eligibility criteria have been satisfied (e.g., a public collateral source has not compensated the claimant). The second presumption is more confusing. It states that the waste was responsible for the exposure and the resulting injury. The only reasonable explanation of this second presumption apparent in light of the modifications made to the earlier presumption drafts and the reasons for those modifications is that the Study Group wishes to place the burden of proof with respect to any contributory negligence defense the Fund might have on the Fund rather than the claimant. That is, as between the claimant and the Fund, the Fund bears the burden of proving that the claimant was responsible for the exposure and its consequences.

The Reporter cites the Workers' Compensation and Black Lung disease presumptions of compensability in his discussion of the Fourth Recommendation, indicating that they "serve the purpose of ruling out claimant's own physical weakness or habits as a contributory factor." [Report, at 203] This interpretation is, however, contrary to my reading of the presumptions and the meaning of the modifications made in them by the Study Group. In the Workers' Compensation and Black Lung situations, there are at least identifiable limited target populations, i.e.., employees or coal miners, although the Black Lung program has experienced considerable controversy over the revised statutory definition of "miner" which grew out of the 1972 and 1977 amendments to the Black Lung Act. Baram, ALTERNATIVES TO REGULATION 219 (1982) ("[Hazardous waste effects] are not effects that are confined to a narrow constituency like employees in a work place."); BLACK LUNG BENEFITS AND REVENUE AMENDMENTS OF 1981: HEARINGS ON S.1922 BEFORE THE SUBCOMM. ON LABOR OF THE COMM. OF LABOR & HUMAN RESOURCES, 97th Cong., 1st Sess. 119, 128-131 (1981) (statement of Frederick W. Webber). While it may be appropriate for employers to take care of employees who contract diseases which are sometimes but not always work-related, it is not appropriate to expect industry to provide such a service to non-employees. See Diet, Alcohol, not Chemicals, Cited as Major Factors in Cancer Development, 6 CHEM. REG. REP. (BNA) (Jun. 18, 1982); National Research Council, DIET, NUTRITION, AND CANCER (1982).

24. See Comptroller General of the United States, LEGISLATION ALLOWS BLACK LUNG BENEFITS TO BE AWARDED WITHOUT ADEQUATE EVIDENCE OF DISABILITY, HRD-80-81 (Jul. 29, 1981). In 1981, Congress repealed some of these presumptions, in a reflection of widespread dissatisfaction with the program. See 127 Cong. Rec. H. 9600-H. 9606 (Dec. 15, 1981); 127 Cong. Rec. S. 15474-S. 15498 (Dec. 16, 1981); 127 Cong. Rec. H. 9788-H. 9798 (Dec. 16, 1981); see Appendix to this statement.

25. He does so again in his Comments. See Breitel, at 6.

26. Cf. EPA's Proposed National Emission Standards for Hazardous Air Pollutants; Policy and Procedures for Identifying, Assessing, and Regulating Airborne Substances Posing a Risk of Cancer, 44 Fed. Reg. 58642 (Oct. 10, 1979); and Comments of the Utility Air Regulatory Group on the Proposed Regulations dated Feb.

21, 1981, in EPA Docket No. OAQPS-79-14. *See also* Rizzo & Arnold, *Causal Apportionment in the Law of Torts: An Economic Theory* 80 COLUM.L.REV. 1399, 1426 (1980) ("[C]ourts [are] becom[ing] increasingly aware of the merits of apportioning damages in tort . . . [and should be encouraged] to cast off their traditional reluctance to apportion damages among joint tortfeasors.").

27. *See*, Breitel, at 6; *see also* Note, *Allocating the Costs of Hazardous Wastes Disposal*, 94 HARV.L.REV. 584, 600 (1981) ("Alternatively, a rebuttable presumption of causation could be created in favor of plaintiffs in selected circumstances, with the result that responsible firms of the entire industry would be liable for costs greatly in excess of the demonstrated costs of the wastes. Such a system would be erratically punitive.").

Note that this multiple causation problem would not go away even if one were to eliminate subrogation and the retroactive aspects of a compensation plan completely. Non-subrogation simply shifts the ultimate incidence of a claim from an individual subrogee company to the taxpaying industries collectively. To the extent the taxpaying industries, even collectively, pay costs largely attributable to other causes of disease (*e.g.*, the claimant's own habits, or his exposures to hazardous substances generated by non-taxpaying industries), the system distorts the marketplace for hazardous waste services and in effect creates a forced waste industry subsidy of other parts of society. *See generally* Stone, REGULATION AND ITS ALTERNATIVES 91-123 (1982); Klemme, *The Enterprise Liability Theory of Torts*, 47 U.COLO.L.REV. 153, 156-165 (1976). If the Tier One scheme through its presumptions and apportionment rules permits such distortions, then a special industry tax is completely inappropriate. The confusion evident in interpretation of what may be relatively innocuous presumptions in Recommendation Four confirms my view that both the funding and the presumptions recommendations are wrong. *See* note 23 *supra*.

28. Jeter v. Hewitt, 22 How. 345, 348, 63 U.S. 352 (1859).

29. *See* S.Rep. 97-284, 97th Cong., 1st Sess. (1981); *cf*. Admin. Conference of the United States, Recommendation 82-5, *Federal Regulation of Cancer-Causing Chemicals* (Jun. 18, 1981).

30. TO ESTABLISH A DEPARTMENT OF ENERGY AND NATURAL RESOURCES, ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION, AND A NUCLEAR SAFETY AND LICENSING COMMISSION: HEARINGS ON S.2135 AND S.2744 BEFORE THE SUBCOMM. ON REORGANIZATION, RESEARCH, AND INTERNATIONAL ORGANIZATIONS OF THE SENATE COMM. ON GOVERNMENT OPERATIONS, 93rd Cong., 2d Sess. 172, 195-211 (1974) (Statement of George Freeman); see Admin. Conference of the United States, Recommendation 82-5 (Jun. 18, 1982), at section V (generic rulemaking on cancer-causing chemicals); Gellhorn, Public Participation in Administrative Proceedings, 81 YALE L.J. 359 (1972); Comment, Public Participation in Federal Administrative Proceedings, 120 U.PA.L.REV. 702 (1972); Cramton, A Comment on Trial-Type Hearings in Nuclear Power Plant Siting, 58 VA.L.REV. 585 (1972); Cramton; The Why, Where, and How of Broadened Public Participation in the Administrative Process, 60 GEORGETOWN L.J. 525 (1972); Clagett, Informal Action-Adjudication-Rulemaking: Some Recent Developments in Federal Administrative Law 1971 DUKE L.J. 51 (1971); Murphy, The National Environmental Policy Act and the Licensing Process: Environmentalist Magna Carta or Agency Coup de Grace? 72 COLUM.L.REV. 963 (1972); Robinson, The Making of Administrative Policy: Another Look at Rulemaking and Adjudication and Administrative Procedure Reform, 118 U.PA.L.REV. 485 (1970).

31. Report, at 245, 248-250. Also, the Report is silent concerning whether the presumptions are to apply in the subrogation action. In my view, the proposed statutory presumptions should not since these particular presumptions are inappropriate in either Tier.

32. Breitel, at 4-5; See Freeman letter to Grad, dated March 10, 1982, in "Comments to the Appendices."

33. The Report's analysis [Report at 107-108] to the contrary notwithstanding, the New Jersey courts in New Jersey v. Ventron Corp. did not pronounce the sort of liability standard described in the Report for cleanup costs under the New Jersey Spill Control and Compensation Act. N.J.S.A. 58:10-23 et seq. (1977). The trial court noted in that case that "[i]n this case it was known by the liable defendants that mercury had dangerous potentialities." No. C-2996-75 (Super. Ct., Ch. Div. Bergen County, Aug. 22,1979), at 55; 1 CHEM & RADIATION LIT.REP., at 376. The appellate court in that case found that it could constitutionally apply the statute's liability standard retroactively because

the statute did *not* create a new "substantive liability." Instead, "[i]t was remedial only, providing a procedure for the imposition of costs to pay for the cleanup of prior *wrongful* discharges." 182 N.J. Super. 210 (App.Div. 1981) (emphasis added); *see* Report, at 150n.306. Furthermore, even when a statute appears to adopt an absolute liability standard making the defendant's knowledge or the objective foreseeability of an accident immaterial, foreseeability is still relevant on the issue of causation. The balancing of social costs and benefits of awarding compensation in a particular case at the expense of an industrial activity *always* takes place, at least implicitly, in a tort suit. Kuster, *Toxic Substance Contamination: The Risk-Benefit Approach to Causation Analysis*, 14 MICH.J.L.REFORM 53, 64-65 (1980) ("[P]olicy considerations are . . . manifest in courts' proximate cause determinations generally.").

34. Appendix L.

35. *See* Report at 161, 230-231, 234-235. In addition, I share Professor O'Connell's concern about the multiplicative number of proceedings arising out of the same incident. *See also* Professor O'Connell's separate statement. I would have substantially reduced the likelihood of repetitious proceedings by not only requiring in Tier One that notice be given to potential subrogees [Report at 231] but also by giving them a right, which is direct or indirect under most Workers' Compensation statutes, to participate in such proceedings.

36. U.S. Const., Art. I, § 9, cl. 3 (Congress forbidden to pass ex post facto laws); U.S. Const., Art. I, § 10, cl. 1 (state legislatures forbidden to pass ex post facto laws); the framers of the Constitution intended the clauses to apply to retroactive civil legislation as well as criminal legislation. *See* Crosskey, *The Ex Post Facto and Contract Clauses in the Federal Convention: A Note on the Editorial Ingenuity of James Madison*, 35 U.CHI.L.REV. 248 (1968); Field, *Ex Post Facto in the Constitution*, 20 MICH. L.REV. 315 (1922) but the clauses have been construed to apply *per se* only to criminal statutes. Calder v. Bull, 3 U.S. (3 Dall.) 386 (1798); the following state constitutional provisions prohibit all retroactive legislation: Colo. Const., Art. II, § 11; Ga. Const., Art. I, § 3(2); Idaho Const., Art. XI, § 12; Mo. Const., Art. I, § 13; N.H. Const., Art. I, § 23; Ohio Const., Art. II, § 28;

Tenn. Const., Art. I, § 20; Tex. Const., Art. I, § 16; *cf.* Murrill v. State Board of Accountancy, 97 Col. App.2d 709, 218 P.2d 569 (1950) (retroactivity violated due process clause); Gayle v. Edwards, 261 Ala. 84, 72 So.2d 848 (1954) (state constitutional violation found in failure to disclose in title of legislation its retroactive effect); SUTHERLAND, STATUTORY CONSTRUCTION, §§ 41.02 - 42.12; Lundquist v. Coddington Bros., Inc., 202 F.Supp. 19 (W.D. Wis. 1962) (statute may not apply retroactively to revive a cause of action already barred by the statute of limitations); Haase v. Sawieki, 20 Wis.2d 308, 121 N.W.2d 876 (1963) (statute attempting to reinstate cause of action objectionable); Massey v. Sullivan County, 464 S.W. 2d 548 (Tenn. 1971) (statute abolishing rule of no contribution for joint tortfeasors cannot be applied retroactively). A law will not be construed as retroactive unless the act clearly, by express language or necessary implication, indicates that the legislature intended a retroactive application. United States v. Whyel, 28 F.2d 30 (3d Cir. 1928); Crawford v. Worth, 447 F.2d 738 (5th cir. 1971); First Nat. Bank in Billings v. First Bank Stock Corp., 197 F.Supp. 417 (D.Mont. 1961); Elliot v. Volpe, 328 F.Supp. 831 (D.Mass. 1971); Douglas Aircraft Co. v. Cranston, 58 Cal.2d 462, 24 Cal.Rptr. 851, 374 P.2d 819 (1962) ("a statute should be given the least retroactive effect that its language reasonably permits."); Mau v. Superior Court, etc., 101 Cal.App.3d 875, 881; 161 Cal.Rptr. 895, 898 (1980) (unfairness of retroactive application to insurers who relied on the previous law in setting premium rates).

Prospective only application of "strict liability" reflected a compromise between those Study Group members who advocated an "industry standard of care" standard for subrogation claims and those who advocated retroactive "strict liability." While the problem of parsing out injuries resulting from past disposal and injuries resulting from post-enactment disposal is difficult, those same difficulties exist under present law (*e.g.* in determining when an accident occurs for purposes of insurance policy coverage).

37. *See* Report, at 161; Freeman letter to Superfund 301(e) Study Group, dated April 12, 1982, in "Comments to the Appendices;" U.S. Department of the Treasury, HAZARDOUS SUBSTANCE LIABILITY INSURANCE 81 (Mar. 1982).

38. *See* Separate Statement of Messrs. Anderson, Breitel, Freeman and O'Connell. *See also* comments on the Report by Messrs. Anderson, Breitel, Lundquist, O'Connell and Spannaus.

39. Strict liability, apportionment and damage issues are inextricably intertwined, as the Report sometimes fails to emphasize. For example, both the alternative liability and market share theories have been applied or considered only in cases involving negligent defendants. Cf. Report, at 49. Coupling either with recovery based on a theory of strict liability would go beyond current case law. Justice Traynor has recognized that strict liability situations are different. Limitations on damages, for example the exclusion of pain and suffering, are appropriate to prevent unfairness when liability is permitted without proof of fault. See Seffert v. Los Angeles Transit Lines, 56 Cal. 2d. 498, 511; 364 P.2d 337, 345; 15 Cal.Rptr. 161, 169 (1961) (Traynor, J. dissenting); and see O'Connell & Simon, PAYMENT FOR PAIN AND SUFFERING: WHO WANTS WHAT, WHEN AND WHY (1972); Levy & Ursin, Tort Law in California: At the Crossroads, 67 CALIF.L.REV. 497, 520-530 (1979).

40. Cf. Duke Power Co. v. Carolina Environmental Study Group, Inc. 438 U.S. 59, 84-94 (1977) (upholding Price-Anderson Act); Silkwood v. Kerr-McGee Corp., 667 F.2d 908, 922-923 (10th Cir. 1982) ("[P]unitive damages are 'awarded' against a person to punish him for his outrageous conduct and to deter him and others like him from similar conduct in the future.' Restatement (Second) of Torts § 908(1)(1979). See also City of Newport v. Fact Concerts, Inc., 453 U.S. 247, 266 (1981). . . [Thus where Congress has preempted the field of regulation of the nuclear industry, we are required] to hold invalid any state action that competes substantially with AEC (NRC) in its regulation of radiation hazards associated with plants handling nuclear material. A judicial award of exemplary damages under state law as punishment for bad practices involving exposure to radiation is no less intrusive than direct legislative acts of the state. Thus, we hold that punitive damages may not be awarded in this case.")

The intrusiveness of State punitive damages on the federal scheme of regulation is heightened where the Federal government requires the licensed persons to meet specified financial responsibility requirements, directly or through insurance. e.g. 42 U.S.C. § 6924(6) (1976) (RCRA); 42 U.S.C. § 9608 (1980) (CERCLA). Coverage against punitive damages is usually excluded from comprehensive general liability policies since as the Ninth Circuit recently noted "no rule of law limits the amount of punitive damages a jury may award." In re: Northern District of California "Dalkon Shield" IUD Products Liability Litigation No. 81-4648 et al, slip op. (Jun. 18, 1982). And intrusiveness into an intended uniform Federal scheme of regulation is compounded by the wide variations existing among the states as to when punitive damages may or may not be imposed. "[T]he 50 jurisdictions in which these [Dalkon Shield] cases arise do not apply the same punitive damages standards. Punitive damages standards can range from gross negligence to reckless disregard to various levels of willfullness and wantonness. Some states, in fact, do not allow punitive damages at all." Id.

Permitting punitive damages to be awarded in state tort actions for the same actions that are punishable by federal criminal and civil sanctions constitutes a form of double jeopardy -- multiple punishment for the same offense. While this multiple punishment does not violate the letter of the Double Jeopardy Clause of our Constitution, it is alien to its spirit.

41. See e.g. In re Northern District of California "Dalkon Shield" IUD Products Liability Litigation, 521 F.Supp. 1188, 1193 (1981), where the district court ordered certification of a nationwide class of all claims for punitive damages under FRCP 23(b)(1)(B) on two grounds. One was that:

> "It is clear that the amount of punitive damages sought far exceeds the available net worth of the company. This fact poses two very real threats if actions on this issue continue on an individual basis: 1) The company will be unable to respond to claims for punitive damages due to actual or constructive bankruptcy; or 2) At some point in the future, courts could rule that the aggregate sum alredy assessed against the defendant company in punitive damages was such that as a matter of law the company had been sufficiently punished and therefore punitive damage claims would be dismissed as a matter of law." 521 F.Supp. at 1193.

The Ninth Circuit Court of Appeals reversed on this point because:

> "The district court certified the 'limited fund' punitive damage class before requesting or receiving any evidence of Robins' net worth,

> earnings or available insurance coverage. After he ordered certification, the judge received Robins' attorney's affidavit showing the total claims against Robins and Robins' fund of assets but did not reopen discovery to permit plaintiffs to challenge these affidavits." No. 81-4648, slip op.

For a summary of the reasons for this overdeterrent effect, see, e.g., Parnell, Manufacturers of Toxic Substances: Tort Liability and Punitive Damages, 17 FORUM 947, 965-967 (1982) ("Punitive damages, when considered in the setting of multiplaintiff litigation, are counterproductive. . .").

42. See letter from Senator Jennings Randolph and Senator Robert T. Stafford to Zazzali, dated April 29, 1982, in "Comments to the Appendices." City of Milwaukee v. Illinois, 451 U.S. 304 (1981); Middlesex County Sewerage Authority v. National Sea Clammers Association, 453 U.S. 1 (1981).

43. Report, at 70-75 and Appendix F. See Freeman letter to Grad dated December 16, 1981, and Freeman letter to Superfund 301(e) Study dated May 17, 1982 [with enclosure] in "Comments to the Appendices." See also Grad, TREATISE ON ENVIRONMENTAL LAW § 4A.05 at 4A-173 (Jun. 1982) ("[T]here is clearly no private right of action left under the federal common law of nuisance.") Even prior to 1981, when the Supreme Court made the matter only of academic interest, it was generally recognized that federal common law was "apparently confined to use by governmental entities . . ." Department of Justice, Land and Natural Resources Division, THE SUPERFUND CONCEPT: REPORT OF THE INTERAGENCY TASK FORCE ON COMPENSATION AND LIABILITY FOR RELEASES OF HAZARDOUS SUBSTANCES 16-17 (June 1979). The now defunct doctrine of the federal common law of tort or nuisance was predicated on concepts of State sovereignty and federalism, rather than individual rights, and therefore had no application to nongovernmental plaintiffs. See Comment, Requiem for the Federal Common Law of Nuisance, 11 ENVIR.L.REP. 10,191 (1981) ("The roots of the federal common law of nuisance reach back to the first decade of this century, when the Supreme Court for the first time acknowledged the jurisdiction of the federal courts to entertain cases brought by the States to abate pollution that has migrated across state lines . . . on the basis of rules borrowed from water apportionment cases and 'principles of federalism.'"); cf. In re

"Agent Orange" Product Liability Litigation, 635 F.2d 987 (2d Cir. 1980), *cert. denied sub nom.* Chapman v. Dow Chemical Co., No. 80-1882 (Dec. 14, 1981) (No federal common law tort liability for suppliers of "Agent Orange"). Milwaukee v. Illinois and Michigan held in 1981 that Congress' "establishment of a comprehensive regulatory program supervised by an expert administrative agency" supplanted the possibility of a federal common law available to State plaintiffs in water pollution cases. 451 U.S. at 317. Middlesex County Sewerage Authority v. National Sea Clammers Association therefore held that it was moot "whether [a] federal common law of nuisance could ever be the basis for a suit for damages by a private party." 453 U.S. at 11n.17. The lower courts have applied this rationale to hazardous waste cases, where RCRA and CERCLA provide the comprehensive statutory scheme which has supplanted any possible federal common law. United States v. Price, 523 F.Supp. 1055, 1069 (D.N.J. 1981) ("The comprehensive nature of the schemes established by the RCRA and the CERCLA require us to conclude that, if federal common law ever governed this type of activity, it has since been preempted by those statutes."); United States v. Kin-Buc, Inc., 532 F.Supp. 699 (D.N.J. 1981).

44. *See* Freeman letter to Grad, dated December 16, 1981, and Freeman letter to Superfund 301(e) Study Group dated May 17, 1982, [with enclosure]. *See also* Comment, *The Supreme Court Closes the Door on Implied Causes of Action Under Environmental Statutes: Middlesex County Sewerage Authority v. National Sea Clammers* 1 VA. J. NAT. RESOURCES L. 304, 326-327 (1981); Casenote, *Middlesex County Sewerage Authority v. National Sea Clammers Association: Implied Private Rights of Action for Damages Under the Federal Water Pollution Control Act Amendments of 1972*, 12 ENVIR.L. 197, 223-224 (1981); *cf*. S.Rep. No. 97-284, 97th Cong., 1st Sess. 164-165 (1981) (regulatory reform act).

45. *See* 127 Cong. Rec. S.12249 (daily ed. Oct. 27, 1981) ("technical" amendment to Clean Water Act in S.1716); H.R. Rep. No. 97-570, 97th Cong., 1st Sess. 21-22 (1982) (H.R. 6307, § 10).

46. 523 F.Supp. 1055 (D.N.J. 1981).

47. *E.g.*, Consumer Product Safety Commission v. GTE Sylvania, 447 U.S. 102, 118 (1980) (post hoc statement by conference committee entitled to little weight);

Waterman S.S. Corp. v. United States, 381 U.S. 252, 268-269 (1965) (legislative history of act passed long after another act does not afford any aid in interpreting earlier statute); Davies Warehouse Co. v. Bowles, 321 U.S. 144, 156 (1943) (suggesting post-hoc administrative interpretation of statute litigation inspired); Penn. Mut. L. Ins. Co. v. Lederer, 252 U.S. 523, 537 (1920) (no aid in construing an act of Congress can be derived from the legislative history of another passed six years later).

48. Report, at 240-256; Breitel at 9-10; In addition, even in the description of current law in the Report's Part III, time, budgeting and staff constraints obviously prevented the Group from completing the kind of comprehensive and thorough job typical of the Restatements. While the topics that are addressed in Part III of the Report are generally handled adequately, many other important legal matters were not addressed (e.g., issues of contribution and indemnification, methods of apportionment such as comparative fault or comparative causation, legal defenses such as assumption of the risk and contributory negligence, and many insurance issues). More particularly, nothing in the Report should be construed to imply that hazardous waste companies under current law bear (or should bear), individually or collectively, the health or other social consequences of injuries or diseases to the extent those injuries or diseases are caused by others. Furthermore, where a better method of apportionment exists based on evidence in an individual case, joint and several apportionment may be inappropriate even though the burden of establishing the better apportionment method (e.g., comparative fault, comparative contribution) might properly be placed on the liable defendants collectively rather than on the plaintiffs, according to the Study Group majority report. Cf. RESTATEMENT (SECOND) OF TORTS, § 433B(2) (1965) (burden of proof on apportionment); Report, at 69 (California "Superfund" apportionment rules).

49. Schmalz, "Superfunds" and "Tort Law Reforms" -- Are They Insurable? 38 BUS. LAW. (Nov. 1982 forthcoming); see Report, at 167-169; "claims-made" policies are not inconsistent with this approach, as the Report intimates; see Report, at 168, 176n.66. The Post-Closure Liability Trust Fund could be expanded to cover injuries arising out of accidents which occur during the operational life of a facility but which

manifest themselves only some time after closure and to cover those very few unexpectedly severe accidents whose damages exceed the high policy limits which would be required of facility operators under a "channeling" apportionment rule. *See generally* Light, *The "Long Tail" of Liability: Hazardous Waste Disposal Insurance and the Superfund Act's Post-Closure Liability Trust Fund*, VA.J.NAT.RESOURCES L. (1982 forthcoming).

50. See Report, at 165-166; Bardach & Kagen, *Liability Law and Social Regulation* in Bardach & Kagen, ed. SOCIAL REGULATION: STRATEGIES FOR REFORM 237, 257 (1982) ("The point here is simply that liability law reforms designed to overcome very real costs and obstacles to legitimate claims can quickly spill over into the same kind of overinclusiveness, unreasonableness, contentiousness, and perverse consequences that characterize legalistic direct regulation."); Bickard & Novey, *The Hydra-Headed Common Law of Pollution Control*, 1 ENVIR.FORUM 26 (1982) ("[T]he common law of pollution can shatter . . . settled expectations.").

51. Honabach, *Toxic Torts--Is Strict Liability Really the "Fair and Just" Way to Compensate the Victims?* 16 U.RICH.L.REV. 305, 321 (1982) ("In the long run, strict liability might impact quite adversely upon us.") Priest, *A Theory of Consumer Product Warranty*, 90 YALE L.J. 1297 (1981) (recommending a "duty to warn" theory of product liability less burdensome than strict products liability); Posner, *Strict Liability: A Comment*, 2 J.LEGAL STUDIES 205, 221 (1973) ("Since the efficient use of resources is an important although not always paramount social value, the burden, I suggest, is on [advocates of strict liability] to present reasons why a standard that appears to impose avoidable costs on society should nonetheless be adopted.").

52. In this regard, the Study Group's explicit rejection of market share and enterprise liability concepts is notable. Report, at 247. *See*, Fischer, *Products Liability--An Analysis of Market Share Liability*, 34 VAND.L.REV. 1623, 1662 (1981) ("The adversary system was designed to resolve disputes in an impartial manner, and any attempt to convert it into a compensation system will fail because of the enormous cost to society."); Gillick, *The Essence of Enterprise Liability, or the True Meaning of "We're All in This Together,"* 17 FORUM 979 (1981) ("Bending established tort principles, or fashioning a new remedy to assist injured plaintiffs, will create *a de facto* absolute

liability upon producers of products for injuries with which they may have absolutely no connection."); Note, *An Efficiency Analysis of Vicarious Liability Under the Law of Agency*, 91 YALE L.J. 168, 197-198 (1981) ("If the principal lacked a reasonable monitoring capability . . . [vicarious liability] tends to increase the number of torts, perhaps to the detriment of efficiency, by diluting the agent's incentives for precautionary behavior."); *cf*. Farnell, *Manufacturers of Toxic Substances: Tort Liability and Punitive Damages* 17 FORUM 947, 968 (1982) ("Indeed, United States manufacturers' fear of the socialistic welfare state may soon be replaced with a different dread, that of absolute liability for its hazardous waste byproducts."); *see also* Report, at 124n.74.

53. *See* H.R. 6159, 97th Cong., 2d Sess. (1982) (Risk Analysis Research and Demonstration Act of 1982); THE RISK ANALYSIS RESEARCH AND DEMONSTRATION ACT OF 1982: HEARING BEFORE THE SUBCOMMITTEE ON SCIENCE, RESEARCH AND TECHNOLOGY OF THE HOUSE COMMITTEE ON SCIENCE AND TECHNOLOGY, 97th Cong., 1st Sess. (1981); H.R. 6307, 97th Cong., 2d Sess. (1982) (Resource Conservation and Recovery Act of 1982); H.R. Rep. No. 97-570, 97th Cong., 2d Sess. (1982); H.R. 85, 97th Cong., 1st Sess. (1981) (Comprehensive Oil Pollution Liability and Compensation Act); H.R. Rep. No. 97-120, 97th Cong., 1st Sess. (1981); S.1483, 97th Cong., 1st Sess. (1981) (Radiation Exposure Compensation Act of 1981).

H.R. 5735, 97th Cong., 2d Sess. (1982) (Occupational Health Hazards Act of 1982); S.2847, 96th Cong., 2d Sess. (1980) (Asbestos Health Hazards Act of 1980); H.R. 25, 97th Cong., 1st Sess. (1981) (Longshoremen's Act Amendments); S.1182, 97th Cong. 1st Sess. (1981) (Longshoremen's Act Amendments); *cf*. D.C. Code 36-301 *et seq*. (D.C. Workers' Compensation Act of 1979); Postel, *The New Act in Town: An Overview of Workers' Compensation in D.C*., 6 DISTRICT LAW. 24 (May/June 1982).

H.R. 5261, 97th Cong., 1st Sess. (1981) (Standards for State Product Liability Tort Litigation Act of 1982); S.2631, Product Liability Act, 97th Cong., 2d Sess. (1982) (Senate Committee on Commerce, Science and Transportation); *Product Safety: A New Hot Potato for Congress*, U.S. NEWS & WORLD REP. 62 (Jun. 14, 1982); Shea, *Product Liability: A Continuing Process of Change*, 68 ABA J. 576 (1982).

H.R. 1027, 97th Cong., 1st Sess. (1981) (bill to establish a federal cause of action for and federal court procedures with respect to aviation activity).

APPENDIX

Subsection of Statute	Initial Proof Required	What is Established by the Presumption	1981 Legislative Action*
§ 411(c)(1) 30 U.S.C.A. § 921(c)(1)	10 years exposure and evidence of pneumoconiosis	the pneumoconiosis arose out of the claimant's employment	
§ 411(c)(2) 30 U.S.C.A. § 921(c)(2)	10 years exposure and death from a respirable disease	death was due to pneumoconiosis	eliminated
§ 411(c)(3) 30 U.S.C.A. § 921(c)(3)	chest roentgenogram or biopsy showing large opacities or massive lesions in the lung (_i.e._, evidence of "complicated" pneumoconiosis)	that total disability or death was due to pneumoconiosis	
§ 411(c)(4) 30 U.S.C.A. § 921(c)(4)	15 years exposure and medical evidence of total disabling respiratory or pulmonary impairment	that total disability or death was due to pneumoconiosis	eliminated
§ 411(c)(5) 30 U.S.C.A. § 921(c)(5)	25 years exposure prior to 1971 and death prior to 1978	survivors entitled to benefits	eliminated

*_See_ 127 Cong. Rec. S 15480 (Dec. 16, 1981).

July 22, 1982

FINAL COMMENTS BY WEYMAN I. LUNDQUIST

Study Group Member

I endorse the report. It is not perfect. It does not reflect the totality of my views. It is a major step in an appropriate direction. Because the report is essentially a consensus product, I question the need for individual comments, as they detract from the report as a whole. Be that as it may, the judicial affection for majority, separate, concurring, minority, or dissenting views is contagious. The lawyers of this committee have caught the disease, myself included. Again, individual comments should not undermine the consensus reflected in the work of this committee.

The constituency of the committee is diverse. The views of its members are substantively different in approach and philosophy. Thus, it is remarkable that this group could achieve the unanimity of agreement it did in recommending compensation mechanisms for the still unquantified problem of injury and harm from toxic wastes. The one specific report proposal I will address is the Tier One-Tier Two election process. While I favor the report proposal, I could comfortably join with the Anderson, Breitel, Freeman, O'Connell position should Congress deem it advisable. I now address our work from a different perspective.

We have learned several lessons from the work and study of the committee. Among them is that problems of latent origination require non-traditional solutions. No present day economic analysis, no cost internalization, no creation of forums, no present medical knowledge, can appropriately deal with problems which should have been dealt with in decades past.

The significant lesson learned from this is that future emphasis--economic, legislative, legal -- should focus on avoiding toxic injury problems, not creating compensation mechanisms for them. Today and tomorrow's efforts and legislation should concentrate on having generators of hazardous waste develop ways to make them benign. Emphasis should be on the treatment of waste materials to make them safe, rather than on storage of the dangerous materials or treatment and compensation for those afflicted.

It is not farsighted to justify current industrial activity on the grounds that economic pressures at home or from abroad mandate that we permit today what we can anticipate will be a greater problem tomorrow. While it is true, as noted by individual committee commentators, that our economy has produced affluence and benefits beyond those of the "pristine jungle," it is equally true that all approaches which have taken us from the "pristine jungle" are not those which will continue to benefit us in the future. It would be nice if one could anticipate that free-market economic forces, left unfettered, would lead to the goals we seek. That has not happened. It is unlikely to happen when short-term gain conflicts with long-term problems and costs. It is difficult to ask that we act now to protect future generations. It is however both wiser and kinder to do this than for us to ask those yet unborn to pay for what we enjoy. I suggest our historic experience with future fixes is not good (witness developing latent toxic disease problems). I do not blame those who were unaware they were creating future problems. I suggest that civilized prudence calls for a more conservative approach today. One example: Who today will vouch for our ability to contain, to cure diseases developed from or even to pay for the secure storage of harmful toxic substances with lives of 20-50 or a 1000 years?

The committee's recommendations provide for compensation remedies for damages. Preventing harm to individuals and their environment is a far better approach than after the fact compensation for injury or harm. The very need for this committee's study arises from the fact that past unconsidered conduct has given rise to substantial present harm which we must now seek to redress with dollars as the best available substitute for health or damage to property.

Unless we live within the capabilities of our resources and knowledge, we are putting at risk the futures of others. One of the sound tenets of our economic system has been that one saves now to invest for the future, for oneself and others. Unless we adopt this prudence in our approach to toxic substance injury and damage, we run the risk of bankrupting the lives and futures of others.

Final draft 7/20/82

COMMENTS BY JEFFREY O'CONNELL, STUDY GROUP MEMBER

Like my colleagues I make a separate statement reluctantly. The reporter and his staff have labored mightily and well against formidable odds. Had my colleagues been content to confine themselves to the separate statement issued by Messrs. Breitel, Anderson, Freeman, et al., I would have joined them in doing so. But in light of the (very understandable) urge of others to expand on their reservations about the report, I join them, lest it be thought I have none.

Extreme pressures of time, understandably imposed by the Study Group on separate comments by members, coupled with conflicting commitments within this narrow time frame, preclude extensive comment by me. So I limit myself to a few fundamental points:

1. The report allows payments under Tier 1 to be made regardless of whether private health insurance, sick leave, disability insurance, etc., have already been paid. Report, Fifth Recommendation. This means that Tier 1 payments will result in either a windfall of multiple payments to claimants for the same loss or subrogation by the claimant's first-party insurer(s) or other collateral sources. At this (or any) state of our economy, to propose such a new, revolutionary, and comparatively generous source of social insurance payment to victims of toxic wastes as is proposed for Tier 1, and yet at the same time to burden it with repaying amounts already paid by other sources of insurance, strikes me as very unwise. Such a new and expensive social insurance scheme should be used to pay only for losses not already covered by other sources. Nor need we fear any significant deleterious effects in lack of deterrence in the resulting externalities given (a) the tremendous difficulties

in calculating appropriate degrees of internalization, and (b) the tremendous burdens which the new Tier 1 remedy, limited to even excess insurance, should mean for American industry. For more of my views on all this in related but different contexts, see O'Connell, *A Proposal to Abolish Contributory and Comparative Fault with Compensatory Savings by Also Abolishing the Collateral Source Rule*, 1979 U. Ill. L. F. 591, 600-06; (hereafter cited as *Collateral Source*); *A Proposal to Abolish Defendants' Payment for Pain and Suffering in Return for Payment of Claimants' Attorneys Fees*, 1981 U. Ill. L. Rev. 333, 353-55 (hereafter cited as *Pain and Suffering*); Ending Insult to Injury 145-47 (1975). Thus I would urge that any Tier 1 payments be in excess to all collateral sources--public and private. *Id*.

2. The report's further indifference to waste in the legal process is indicated by the number of proceedings it authorizes for harm from toxic wastes. There will be (1) a Tier 1 proceeding (with the possible ultimate respondent-payer--whether generator, transporter, or disposer--notified of the Tier 1 proceedings so that such respondents will be inclined to attend, even if not allowed to participate, in order to prepare for possible subrogation or tort proceedings, with all the costs of thus attending the Tier 1 proceedings); (2) a subrogation proceeding by the Tier 1 source of payment against any likely respondent; and (3) a Tier 2 proceeding in tort between an alleged victim and any likely respondent. So we will have three (count'em!), three possible legal proceedings arising from the same incident. And that does not take into account the possible appeals at each stage, nor the additional appeals stemming from federal-state interaction. Report, Eighth Recommendation. With all due respect to my fellow committee members, only a committee of lawyers would invent such a complex structure of multiple legal

proceedings.

How could the above difficulties be avoided?

3. If a no-fault administrative remedy for injuries from toxic wastes is feasible (and as to that see below), it should be (a) in excess of all other insurance, public and private (perhaps including even life insurance, see O'Connell, Collateral Source, 1979 U. Ill. L. F. at 602), and (b) a sole remedy, with a possible exception for tort actions in extreme cases. O'Connell, Pain and Suffering 1981 U. Ill. L. Rev. at 350-51, 360-62. To propose in our current (or any) economic clime that those generating or disposing of toxic wastes pay no-fault benefits, plus remaining fully liable in tort (with only a subtraction of no-fault benefits from tort liability), strikes me once again as very unwise. Would anyone--except plaintiffs' personal injury lawyers--propose that employers be fully exposed in every case to both workers' compensation and common law liability? That workers compensation benefits are now occasionally supplemented by third-party tort actions is itself extremely unwise. O'Connell, An Immediate Solution to Some Products Liability Problems: Workers' Compensation as a Sole Remedy for Employees, with an Employers' Remedy Against Third-Parties, 1976 Ins. L. J. 63; Bargaining for Waivers of Third-Party Tort Claims: An Answer to Product Liability Woes for Employers and Their Employees and Suppliers, 1976 U. Ill. L. F. 435-41; The Lawsuit Lottery: Only The Lawyers Win 216-17 (1979) Far better to make social insurance benefits truly adequate than to supplement a relatively few beneficiaries with the lottery of tort litigation Id. Note that the report goes further than the workers' compensation situation in that every respondent for toxic liability faces the possibility of Tier 1 plus Tier 2 liability. That add-on

laws (simply adding on no-fault remedies to existing tort rights with no limitations on the right to sue in tort except for a deduction of the no-fault benefits in the tort action) are overly expensive and unworkable has, I submit, been amply demonstrated in the auto insurance field. O'Connell and Beck, *An Update of the Surveys on the Operation of No-Fault Auto Law*, 1979 Ins. L. J. 129; O'Connell, *Operation of No-Fault Auto Laws: A Survey of Surveys*, 56 Neb. L. Rev. 23 (1977); J. O'Connell, The Lawsuit Lottery Ch. 8 (1979); Note, *No-Fault Automobile Insurance: An Evaluative Survey*, 30 Rutgers L. Rev. 909 (1977).

Nor are the so-called "exit tolls" proposed in the report (Report, First Recommendation), whereby a claimant pursuing both Tier 1 and Tier 2 remedies may be subject to an assessment of costs upon an unsuccessful (as well as relatively unsuccessful) pursuit of Tier 2 remedy, likely to be effective, given the unlikelihood of insurers or defendants pursuing the typical unsuccessful tort claimant to recover financial penalties.

The problems of an add-on remedy would be alleviated considerably by the proposal contained in a separate statement by members Breitel, Anderson, Freeman, *et al*. Under that proposal, in return for expanding Tier 1 benefits to include some compensation for psychic los unless it would be, say, unconscionable for a claimant to be confined to a Tier 1 remedy, no pursuit of both Tier 1 and 2 would be allowed. For one genesis of this criterion based on unconscionability, see O'Connell, *Offers That Can't Be Refused*, forthcoming in Nw. L. Rev. (1982). To get the flavor of a proposal for scheduled compensation fc psychic loss, see the Australian proposal, making use of objective cri teria formulated by the American Medical Association, set forth in Pal mer, *Accidents, Sickness and Compensation* in J. O'Connell & R. Henders

Tort Law, No-Fault & Beyond 696, 704-10 (1975).

It may unfortunately be the case that the problems of causation in toxic torts are too intractable to make for easily defined no-fault insured events, such that the definition of liability cannot be readily formed, even with carefully drafted presumptions. Certainl the difficulties in the most closely anal~~a~~ogous area--that applying workers' compensation with its no-fault premise to industrial *diseases* give one pause. In light of those difficulties, I have elsewhere suggested a half-way house between genuine no-fault and the egregious inefficiencies of fault liability: A statute under which any defendant against any claim for personal injury caused by toxic wastes (as well as other personal injury claims) be given the option of foreclosing any such claim, by offering within six months of the claim to pay claimant's net economic loss, consisting mostly of medical expense and wage loss beyond any collateral source already available to the claimant. Thus, defendants could limit payments to claimants' out-of-pocket losses unless such a limitation of liability would be deemed unconscionable. To create incentives for this system, if the defendant refuses such payment the burden of proof as to lack of liability could be shifted to the defendant, with the case placed on an expedited trial calendar (at the claimant's option) and with consideration of claimant's fault (including contributory or comparative negligence, assumption of risk) deemed irrelevant to defendant's liability. For more on this proposal, see O'Connell, *Foreclosing Claims for Personal Injury from Toxic Substances by Defendant's Tender of Claimant's Net Economic Losses*, forthcoming in Va. J. of Natural Resources L. (1982); *Offers That Can't Be Refused: Foreclosure of Personal Injury Claims by Defendants' Tender of*

Claimant's Net Economic Losses, forthcoming in Nw. L. Rev. (1982).

But in closing, let me say that, on balance, I praise the report. It recognizes the crucial issue--the need for an improved remedy compared to the common law claim, calling for simplified criteria and lesser payment. And it struggles to recognize--however inadequately--that such a no-fault remedy for less payment cannot simply be added on to common law liability with little or no barrier between pursuit of both fault and no-fault claims. Bravo for that, say I.

COMMENTS OF
WARREN SPANNAUS

Following the completion of the report, committee members led by Messrs. Anderson and Breitel developed an alternative to the "exit barrier" approach proposed in the recommendations. The general nature of the alternative which (1) requires judicial approval to pursue a tier two (common law) action following a prior election of a tier one (administrative) remedy, (2) broadens the benefits available to claimants and (3) may reduce reliance on tier two actions, was discussed at the committee's last meeting. However, the proposal was not developed in sufficient detail at that time. As a result I supported the exit barrier recommended in the report. Although I still support the exit barrier approach, the Anderson-Breitel proposal as more fully explained in their comments is also worthy of consideration by Congress.

Post Office Box 305
Sault Ste. Marie, Michigan 49783
August 8, 1982

Albert Gore, Jr., Chairman
Subcommittee on Investigations and Oversight
U.S. House of Representatives
Suite 2321, Rayburn House Office Building
Washington, D.C. 20515

Dear Chairman Gore, Members of the Committee;

While I appreciate the invitation to be with you at the hearing scheduled for August 12 as you consider the problems of compensation for victims of chemical and pollution exposure, a number of factors preclude my participation. I would be pleased however, if this communication could be considered in your deliberations.

My personal involvement has been with the fire retardant PBB, or polybrominated biphenyl, a patented compound manufactured by the now-defunct Michigan Chemical Company under the trade name "Firemaster." PBB was introduced into the human food chain after an unknown quantity of Firemaster was substituted for Nutrimaster, a dairy cattle feed supplement sold by Michigan Farm Bureau Services. The mixup started in 1973. While that may sound simple enough, it was the beginning of what became the worst agricultural disaster in this country's history. The impact on humans has not yet been assessed... and never will be, considering the course pursued by those agencies, both federal and state, charged with the responsibility of safeguarding our health.

If the entire problem had to be summed up in a single paragraph, the principal points would be that the chemicals used in today's society are exceedingly complex and sometimes excessively hazardous; that the corporations manufacturing these chemicals lack the moral responsibility to acknowledge error (in part, at least, because of the huge sums of money involved), that regulatory agencies are inclined toward creative thinking only when that will result in less work for themselves (they will spend years denying that a problem exists, rather than enter new realms), that the medical profession is composed of experts who will hedge on anything less obvious than a bullet hole — unless they are paid by a corporation to arrive at a predetermined conclusion (ask the tobacco industry for a list); we have evolved a legal profession more concerned with adroitly playing the complex rules of their own game than with the original goal of seeing justice served; and we have an over-burdened civil court judiciary that watches (with disdainful interest) the conduct of the hired adversaries rather than become concerned with either the plaintiffs or the defendants. To top it off, the general public seems to have decided that it's all beyond hope and would rather not hear about it any more. (The trouble with society today is apathy — but who cares?)

Your letter of invitation suggests that the major problem with seeking compensation is one of "linkage". This is certainly not the essential situation with the PBB incident. There was a single manufacturer and a primary distributor. The compound is dangerous, was never meant to be ingested by humans, is without doubt a carcinogen. Yet, with the system working the was it does, as outlined above, it is not possible to say, "He made it, he distributed it, I've got it in my body, I'm damaged now and will continue to be damaged by its presence."

Even the foot-dragging authorities now concede that some 97 per cent of Michigan's population has been contaminated with PBB. I would have been better off legally if Michigan Chemical had made an unsteerable truck with no brakes and a Farm Bureau employee had gotten behind the wheel and run me over. The PBB incident certainly would have been handled a whole lot differently if that Michigan Chemical truck with its Farm Bureau driver had gone on resolutely, eventually to run over 8,000,000 people in Michigan and an unknown number of people in other states. The analogy is appropriate.

With your indulgence, I'll try to summarize an incredibly complicated and frustrating eight years, as seen from the bottom of my own personal rut.

First, let me identify the protagonists in my battle: Michigan Chemical Company, a subsidiary of Velsicol, which was a subsidiary of Northwest Industries; Farm Bureau Service (FBS); Michigan Department of Agriculture (MDA); Michigan Department of Public Health (MDPH); My family, wife Donna, sons Henry, Larry, and Scott, and daughter Vicki.

The situation, in essence, late in 1974, was that our three sons were high-performing athletes and average-to-honor-roll achievers academically; our daughter was involved in a variety of social activities, some athletics, and was also an honor roll student. My wife and I owned a modest retail store, I wrote some free-lance magazine material, worked for a non-profit social agency, and we made just about enough money to support the kids in their endeavors. Our choice was to attend their various sports events or competitions, rather than to concentrate on accumulating money; the kids were fun, the trips were fun, the boys were already in consideration for various athletic scholarships and there seemed to be little doubt that our daughter would be able to earn an academic scholarship, if college was their goal.

In late 1974 we became aware of an abrupt change in our youngest son, Scott. He was fourteen then, an incredible athlete and an excellent performer in school. He had never been ill, was normally cheerful, and was blessed with a logical intellect that impressed most adults with whom he came in contact.

Suddenly he was sick. He ate prodigiously but was losing weight, he slept whenever he wasn't forced to go to school, became injury prone in both football and hockey (the seasons overlap here), had unusual skin eruptions, and was experiencing hair loss.

Scott was a strapping 5'11'' youth in excellent physical condition who went from approximately 170 pounds to 140 pounds in about 60 days. Our anxiety over Scott's condition absorbed the attention we should have been paying to what the other three youngsters were going through at that time; Scott's problems were much more severe — or at least more obvious.

Teenagers are funny animals to deal with and it wasn't until January of 1975 when Scott was seriously injured during a hockey practice that we succeeded in getting medical attention for his underlying conditions. He was diagnosed as having an ulcer — and, honest to God, ''growing pains.'' At that time, the ulcer was actually good news because it explained to our satisfaction what was ailing him. The cause of the ulcer, in my mind at least, was that he was interpreting my interest and support of his athletics as pressure to perform (something we had sincerely tried to avoid with all the kids). He went back to hockey, the other children were behaving inexlicably, I was going through a personal hell of exhaustion and anxiety, my wife was short-tempered and ''tired of it all.''

By March it was clear that, although Scott's ulcer had healed, his problems hadn't gone away. Other medical advice was sought, but no help was forthcoming. In May a close friend, deeply concerned over the changes in Scott, suddenly realized he was seeing similar conditions in calves on local dairy farms. Lethargy, swollen joints, voracious appetites accompanied by drastic weight losses, skin sores, patchy hair loss— PBB. It was the first time I had heard the letters. In June, Scott became the first human from Michigan's remote Upper Peninsula to have a blood sample analyzed for PBB content. Inexplicably, it was there.

We had been living in Sault Ste. Marie for nearly six years at that time, and not one of the children had ever eaten a meal on a farm in the county. We did buy eggs by the case, cheese in forty-pound blocks, milk directly from a local dairy in multi-gallon lots, and beef by the side or carcass. Our high-performing jocks ate a lot of protein. Our high-performing jocks were also literally falling apart before our eyes. We declared a virtual moratorium on organized activities for the summer.

Our oldest son decided to leave home (he was 19 then) because he didn't want to do dishes in his turn. Our daughter declared she would do anything rather than continue to be a part of our regimen. Our Number Two Son was driving himself crazy — and us along with him — in about 15 different ways simultaneously... and Scott was sick. It was not a good summer.

Things became a little better organized with the onset of fall, the strays decided to come home, football and cross country seasons started... and Scott was sick. He played, but not up to his previous standards. This distressed him as much as anything and drove him to greater lengths and increasing disappointment. When hockey season started, he was carried off the ice in the first practice vomiting blood. The next morning I arranged for the excision of a tissue sample for PBB analysis. By this time I had been visiting farms in the area with the local agricultural extension agent and, if we really were dealing with PBB, I was scared.

We really were. I really was.

That's when we became trouble-makers. The ulcer rate had increased 500 per cent locally. MDPH said it didn't mean a thing. The county board, after I contacted them about what appeared to be a problem, demanded the state send someone up for a public hearing. Two MDA veterinarians appeared and explained that while PBB was fatal to mice, rats, cats, dogs, rabbits, chickens, ducks, cattle, pigs, goats, horses, and quail, there was no indication that it would harm humans. It was indicated that a person would have to eat an entire contaminated steer each day to acquire the level my son had in his tissue — and besides (get this) they weren't there appearing to discuss human health, their sole concern was with consumer protection. (I can show you the transcript.)

The county board, unsatisfied, demanded that the state send up someone from the Health Department. They did. He was just as enigmatic. An epidemiologist, this one explained that Scott's problems could be from any number of things not yet tested for (I suggested possibly meteorite dust in his Wheaties), that nothing was known about PBB in humans, that even in the unlikely event it did prove harmful, no one knew what to do about it... so there was no reason to test for it.

I got hold of a "secret" MDA quarantine list. There were over 500 farms named, but just two from the Upper Peninsula then, and they were both beef operations from which we had not purchased beef. Some new friends participated with us in sending letters to the 500-plus families, asking what was going on and if they were having human health problems as well as animal problems. Scores of those people called and 200 or so wrote back; almost without exception MDA had been leading each to believe they had the only farm in the state with such poor management that they had developed PBB problems. The dam had burst.

Some attorneys in the southern part of the state had taken up the cause by then. Gary Schenk (scheduled to appear before your committee) was one of those early crusaders. A few doctors were demanding that something be done before the stuff was spread all over, and before it was too late; they were largely discredited. The press took a passing interest in some of the sad stories being told, but when they tried to check out the facts with MDA or MDPH, the "authorities," they were generally waved off; the principal problems were poor management, they were told. (Michigan Farmer magazine was another early campaigner; it cost them a fortune in lost revenues to rail against the established FBS and to editorially support the condemnation of animals contaminated with a chemical of unknown characteristics.)

Thousands of animals were dying on hundreds of farms that had not been inspected or quarantined. Many were being shipped to rendering plants, where they were turned into everything from pharmaceuticals to chicken feed. Michigan State University ran a four-group PBB test on mink. The animals were fed contaminated beef, contaminated chicken, contaminated fish, and the control group was fed commercial mink feed. All the mink died. The commercial feed was tested and was found to be laced with PBB. The test was thrown out because of the lack of controls, despite the alarming implications — and perhaps because of the alarming implications.

Two veterinarians in the state vociferously urged action. MDA said, and I quote from an illegal tape made at one of their meetings, "Yeah, well,we're gonna take care of them, we're gonna lift some licenses."

The federal Food and Drug Administration was not silent through all this. Representatives testified at several hearings that their role was that of big brother, that the arbitrarily established tolerance levels for PBB were probably just fine, that they had been assured this was a one-time incident and it would go away by itself.

On the home front, we accidentally became aware of our phones being tapped, private detectives were showing up in strange places asking questions about our personal activities, we were vilified in some circles as being out to destroy Michigan's agricultural industry. And Scott was sick.

MDA was saying that the chemical was complex, that contaminated animals exhibited a variety of symptoms, and that blood tests were unreliable because PBB levels varied almost minute by minute and that fat samples were to be used in contamination verification. MDPH was saying PBB was not a problem, that there was no identifiable common symptomology nor apparent dose relationship, and that they were going to set up a blood sampling system that was guaranteed to prove the stuff wasn't harming anyone. And Scott was sick.

The cause progressed. An impressive array of people began paying attention through the following months. I remained incredulous that this was happening, that the agencies involved were leading formerly responsible people to perform acts (or not perform them) that were slowly and inexorably leading to the poisoning of all the people in the state. And Scott was sick.

A handful of interested parties in this area, removed from the foray as we are, began some serious testing. We tested a number of people, but had trouble getting results back from state laboratories.We tested milk from 22 nursing mothers, and the state held up the results for seven months (finally releasing them in a smoke-screen of other tests that showed while there was, oh yeah, some PBB, there was also PCB and DDE and a whole lot of other things... and it really wasn't too bad.). We arranged for tissue samples from operation patients at the local hospital and for the excision of brain and liver and pancreas samples from bodies during autopsies (with relatives' consent) in 1975 and 1976 and we found the stuff was rapidly spreading through the general population in this "non-contaminated" area where only a couple of farms were quarantined. And Scott was sick.

In March of 1976 I decided that if I really believed what I was saying (to anyone who would listen), that PBB was a chemical that was hurting people and that had already done immeasurable damage to my youngest son, it was time to start being serious and get into the arena of the courts. Several attorneys had indicated we had the basis for a law suit and we picked our shot. The firm we selected was eager and aggressive and vowed that justice would be served. I turned over the preparation of our complaint to them. I had never in my life sued anyone before.

When the complaint was in its final stages of preparation, one of the attorneys who was to represent us called. Him: "How much should we go for?" Me: "It has to be enough to take care of Scott if he doesn't get back on his feet, and it has to be enough to make them pay attention when the suit is filed." Him: "How about a million bucks?" Me: "That sort of game is up to you." Him: "Well then, we'd better make it $2 million, then if we settle we'll get a million." Me: "You're the expert, and that's what you'll get your share for." Him: "Then maybe we'd better make it for $5 million, and how about $1 million each for you and your wife." Me: "Whatever you say."

In June of 1976 a suit was filed in Chippewa County Circuit Court asking $7 million in actual, anticipated and punitive damages. It was the first human health suit alleging problems related to PBB. And Scott was sick.

Other cases went to court before ours, including a livestock damage case presented by one of your panelists that turned out to be the longest trial in state history; all lost.

Witnesses were humiliated on the stand and refused to testify again. Some potentially helpful medical witnesses, again including one of your panelists today, stated up front that they would not acknowledge subpoenaes served on them from the State of Michigan and that they would not spend the rest of their careers tied up in courts. Evidence was barred on a variety of grounds. Poor choices of which suits to try first set precedents that made things infinitely more difficult for those that followed. And Scott was sick.

Two law firms and nearly six years later it was recommended that we accept a settlement out of court. The amount actually received was miniscule; I don't think we wound up with enough to cover the phone bills that were involved over the campaign. The lawyer representing us in the end game wanted to charter a plane to come to the Sault in order to explain to us that his expenses came off the top.

Part of the settlement included agreeing not to divulge the amount, but what we received was in the four-figure range. Who would settle for so little? Well, anyone who didn't want to go into a loaded court fight with a lawyer who didn't think we had a chance of winning... and who astutely pointed out the kind of costs being assessed against the losers.

I wish I could say that it's all behind us, but it isn't. Every member of my family has more PBB in his or her system than did the cattle that were condemned and killed. My two oldest sons both quit athletics because of tendon and joint problems, my daughter has had five knee operations in the last three years, my wife has stomach and joint problems, Scott has a liver the size of a washtub and knees that swell to the size of grapefruits and I have had two heart attacks and can barely walk some days. I work a couple of days a week, Scott works with me in the U.S. or with my wife in Canada a few days a week, and we get by. Also, though, we are not alone.

The empirical evidence is that a profound change occurred in the human health pattern in Michigan between 1973 and 1975. The statistics necessary to prove the extent of the change have not been compiled, and I don't expect they ever will be. My family is part of the "long-range human health study" being conducted by MDPH... and we haven't been contacted since 1976. I'm sure that many of the things I see as possible indications of the above change are totally unrelated; I'm also sure that more effort is being expended to explain them away than to see if they make a pattern.

The chemical you have chosen to examine perhaps does not fit the parameters of your intention. PBB had a sole source; only Michigan Chemical employees and a handful of Farm Bureau people could ever enter a workmen's compensation claim. Michigan Chemical is closed and gone, and the state would never support a claim against Farm Bureau. The contaminant itself was so "dirty" in manufacture that consistent symptomology is unlikely to become evident, so there is little to go to court with. Once in court, the experts for the good guys either refuse to testify or keep saying, "Well, maybe..." while the hired guns on the other side say, "No Way!"

Meanwhile, Blue Cross and Blue Shield, the health insurer for some five million people in the state, is charging more than carriers in surrounding states, is denying more claims than anyone else, and is saying they are losing millions each year because so many people in Michigan are sick.

I am pleased that your committee is going to try to sort it all out. The complexities of the issue far surpass my abilities. I commend you, and I wish you well.

Sincerely,

Hank Babbitt.

Hank Babbitt